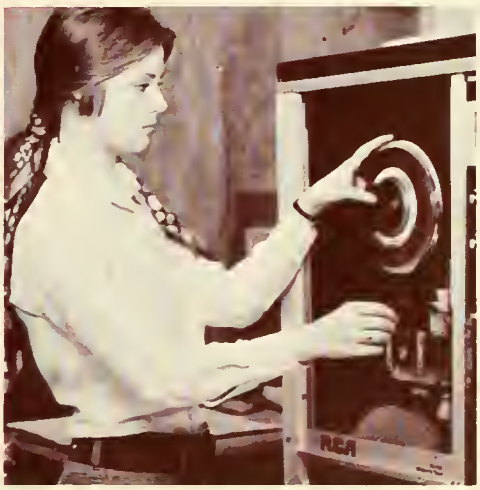
THE WILLIAMSPORT AREA COMMUNITY COLLEGE



1981 - 82 Catalog

The Williamsport Area Community College

A Two-Year, Co-Educational,

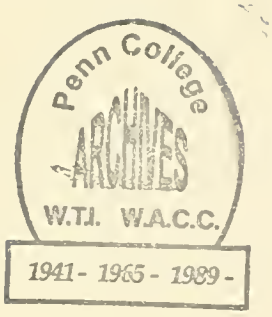
Publicly Supported Institution

Serving North Central Pennsylvania,

Fully Accredited Member of

Middle States Association of Colleges

and Secondary Schools



The provisions of this catalog are not to be considered an irrevocable contract between the student and the College. The Williamsport Area Community College reserves the right to change any fees, requirements and regulations at any time within the student's term of enrollment at the College.

Students are responsible for meeting in full the requirements for graduation set forth by the College. The student advisor assists in the planning of a program, but the final responsibility for meeting the requirements for graduation rests with the student.

The Williamsport Area Community College does not discriminate on the basis of age, sex, handicap, race, religion, creed, or national origin. Student inquiries concerning Title IX compliance should be directed to the Dean of Student Development in Room 201 of the Klump Academic Center, The Williamsport Area Community College, 1005 West Third Street, Williamsport, PA 17701-5799/(717) 326-3761, ext. 243, or to the Director of the Office of Civil Rights, Department of Education, Office of Civil Rights, Washington, D.C. 20201.

SPONSOR SCHOOL DISTRICTS

Bradford County
- Canton Area
- Troy Area

Clinton County
- Keystone Central

Columbia County
- Millville

Lycoming County
- East Lycoming
- Jersey Shore Area
- Montgomery Area
- Montoursville Area
- South Williamsport Area
- Williamsport Area

Northumberland County
- Line Mountain
- Warrior Run

Potter County
- Northern Potter

Snyder County
- Selinsgrove
- Midd-West

Sullivan County
- Sullivan County District

Tioga County
- Northern Tioga Area
- Southern Tioga Area
- Wellsboro Area

Union County
- Mifflinburg Area

The Williamsport Area Community College

1005 West Third Street
Williamsport, Pennsylvania 17701-5799
(717) 326-3761

Catalog 1981-82

Table of Contents

About The College
President's Message – 1
Board of Trustees – 1
Campus Map – 2
Admission – 3
Tuition and Fees – 8
Financial Aid – 10
Associate Degrees – 13
Certificates in Special Fields – 14
Divisions and Programs – 15
  Associate of Applied Arts and Sciences
  And Certificate Programs – 17
  College and University Transfer Programs – 65
  Exam Preparation – 71
  Prison Programs – 72
Course Descriptions – 73
Student Development – 109
Campus Life – 111
Academic Information – 113
Developmental Studies – 122
Center For Lifelong Education – 123
Secondary Vocational Program – 124
Commencement Awards – 125
Staff – 127
Advisory Committees – 131
Index – 135
Calendar – 140

About The College

Philosophical Platform

We believe in people – in their dignity, in their worth as individuals, and in their capacity to develop their abilities to the fullest potential. We believe that people who perform competently and who find meaning in their work will be healthier and happier people, and the organizations in which they work and the communities in which they live will benefit. We believe in an integrated approach to learning where education and the world of work function in a cooperative atmosphere. We believe that by assisting the individual in discovering, preparing for, developing and maintaining a career, we are also developing the community.

Mission

It is the mission of The Williamsport Area Community College to provide performance-oriented educational services responsive to the current and future needs and interests of individuals and organizations in our service area. We are dedicated to working with other agencies in developing the full potential of individuals and communities in our area. We are deeply committed to providing quality and accessible career education on both the high school and college level, as well as lifelong learning opportunities. Within the resources available to us, we will attempt to carry out our mission as efficiently as possible. Above all, we care about people and will attempt to fulfill our mission within the context of a humanistic educational environment.

History

1914 – A small industrial arts shop opened at the Williamsport High School.
1920 – A full-time adult day school and an evening school were established.
1941 – The Williamsport Technical Institute was formed, encompassing both the adult and high school programs.
1965 – The Williamsport Area Community College was established by expanding the programming of the Williamsport Technical Institute to include a larger range of community needs.
1981 – The College dedicated three new buildings constructed under Phase I-Stage I of a building improvement program.

Today

The Williamsport Area Community College fulfills its philosophy and mission in providing educational services through five program areas:

- Associate degree and certificate programs in vocational fields for students who desire to prepare for employment after graduation.

- College and university transfer associate degree programs for students who plan to transfer to a four-year institution to complete work toward a baccalaureate degree.

- Developmental studies courses for students who need to improve their competencies in English, mathematics and reading.

- Secondary vocational programs in occupational fields for high school students from participating sponsor school districts.

- Lifelong education programs and courses for individuals, businesses, industries and other organizations.

The Williamsport Area Community College is sponsored by 20 school districts in North Central Pennsylvania. Almost one-half of the students in the associate degree and certificate programs live in the sponsor areas. The remainder come to the College from across the state of Pennsylvania, other states, and several foreign countries.

PRESIDENT'S MESSAGE

These are exciting times. We face a world of rapid change and expanding opportunity. The faculty and staff at the Williamsport Area Community College are eager to help you realize your personal and professional goals. To that end we offer you more than 50 programs of study and a variety of related services.

Throughout our history, the College has been a pioneer in preparing students for the opportunities open to those with knowledge, skills and experience. Whether you are a high school student planning your first career or an adult considering a new career, we invite you to explore our programs and services.

All of the College's resources are open to you as you prepare for the challenges of the eighties. I invite your active participation in a College that believes students are the reason for its existence.

Robert L. Breuder, Ph.D.
President

BOARD OF TRUSTEES

The members of the Board of Trustees of The Williamsport Area Community College are elected by the school boards of the 20 districts which sponsor the College. Their faith in the future of the College and their contributions of time and energy have resulted in the on-going progress of all facets of the institution.

Back row, left to right — Louis E. Eiseman, Dr. Paul F. Klens, C. William Sick, Quentin S. Snook, Dr. John H. Bone, Robert Swartzlander.
Front row, left to right — Mario Caldera, Gay Campbell (Vice Chairman), W. Jack Lewis (Chairman), Edward J. Durrwachter (Secretary), Joan Howard.
Not shown in picture — Wesley S. Dodge, Kathryn Lumley, Paul A. Paulhamus.

W. JACK LEWIS/CHAIRMAN, BOARD OF TRUSTEES; Millville

GAY CAMPBELL/VICE CHAIRMAN, BOARD OF TRUSTEES; Morris

EDWARD J. DURRWACHTER/SECRETARY, BOARD OF TRUSTEES; Williamsport

DR. JOHN H. BONE/Jersey Shore

MARIO CALDERA/South Williamsport

WESLEY S. DODGE/Williamsport

LOUIS E. EISEMAN/Williamsport

JOAN P. HOWARD/Montgomery

DR. PAUL F. KLENS/Mill Hall

KATHRYN LUMLEY/Jersey Shore

PAUL A. PAULHAMUS/Cogan Station

C. WILLIAM SICK/Dushore

QUENTIN S. SNOOK/Mifflinburg

ROBERT E. SWARTZLANDER/Dalmatia

CAMPUS MAP

A II — Automotive II (1)
Secondary Automotive

EL I — Electrical I (2)
EL II — Electrical II (3)
Electrical Construction
Electrical Technology

MT — Machine Trades (4)
Machine Tool Technology
Machinist General
Sign Painting

SD — Stitzel Diesel (5)
Diesel Mechanics

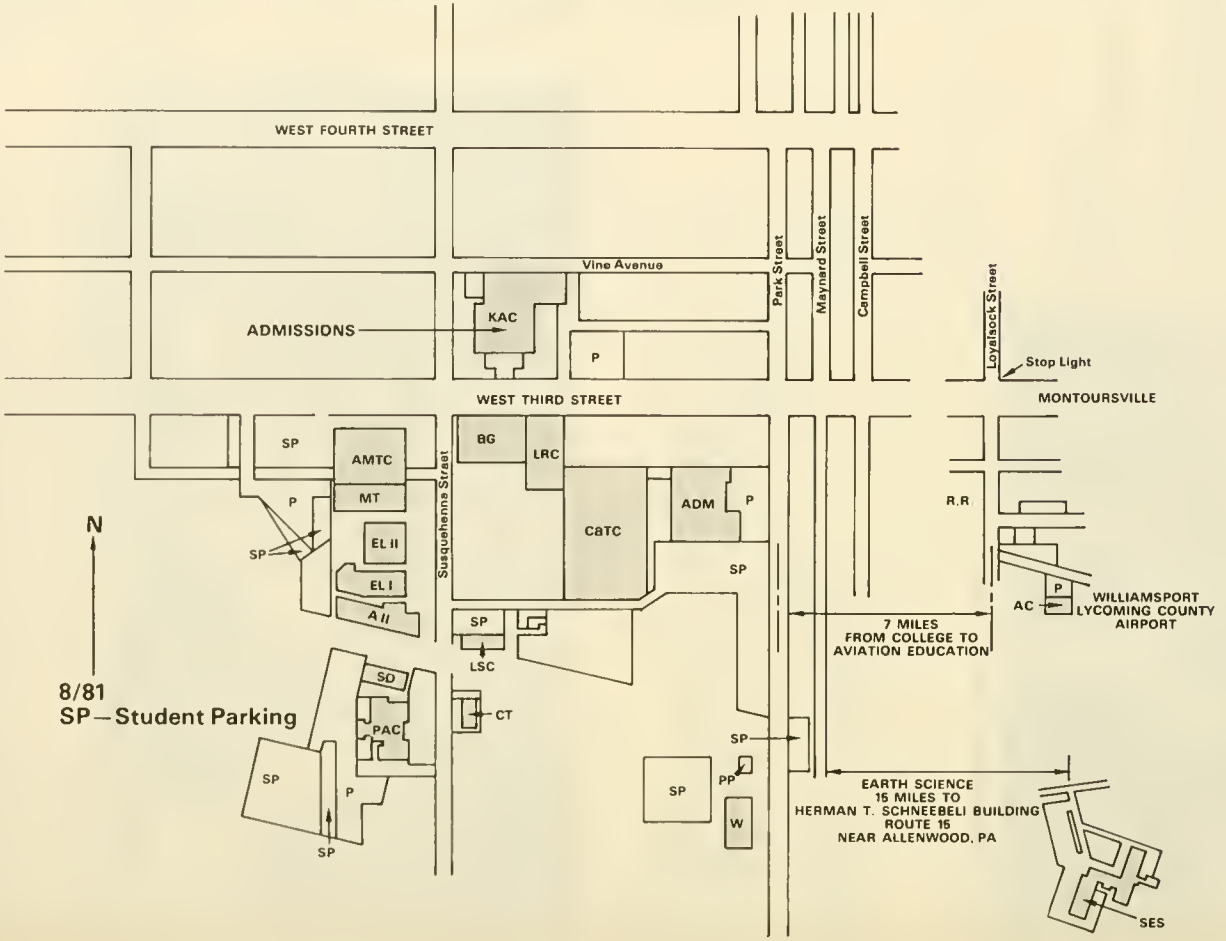
ADM — Administration (6)
Broadcasting
Electronics Technology
Engineering Drafting Technology
Graphic Arts
Industrial Drafting
Printing
Science Laboratories
WWAS-WACC Radio
President's Office
Alumni
Assistant to the President
Associate Dean, Secondary
Business & Financial Operations
College Information
Dean, Administration
Duplicating & Mail Services
Personnel
Resource Development
Special Assistant to the President

AC — Aviation Center (7)
Aviation Technician

PP — Physical Plant (9)
Dean, General Services

W — Warehouse (9)

KAC — Klump Academic Center (15)
Accounting
Advertising Art
Business Management
Clerical Studies
Communications, Humanities, Social Sciences
Computer Science
Dental Hygiene
Dietetic Technician
English
Food & Hospitality Management
Journalism
Marketing/Merchandising
Mathematics, Science, Allied Health
Operating Room Technician
Practical Nursing
Secretarial Science
Technical Illustration
Admissions
Associate Dean, Postsecondary
Bursar
Cafeteria
Computer Center
Cooperative Education, Postsecondary
Dean, Academic Affairs
Dean, Lifelong Education
Dean, Student Development
Financial Aid
Placement
Security (Parking, Lost & Found)
SPOTLIGHT
Student Activities
Student Government Office
Student Records
Tot Watch
Veteran's Information
YETP



BG — Bardo Gym (16)
Physical Education & Health

AMTC — Avco Lycoming Metal Trades Center (17)
Welding

CT — Civil Tech (18)
Civil Engineering Technology

LSC — Lair Student Center (19)
Dispensary
Student Center

LRC — Learning Resources Center (20)
Architectural Technology
ACES Office
Bookstore
Counseling & Career Development
Developmental Studies & Act 101
Library/Learning Resources Center
Mathematics/English Laboratory
Media Center
Reading Laboratory

CBTC — Carl Building Trades Center (21)
Air Conditioning/Refrigeration
Carpentry
Carpentry & Building Construction Technology
Plumbing & Heating

PAC — Parkes Automotive Center (30)
Auto Body Repair
Automotive Mechanics
Automotive Technology

SES — Schneebeli Earth Sciences (31)
Agribusiness
Floriculture
Forest Technology
Nursery Management
Service & Operation of Heavy Construction Equipment
Wood Products Technology

Admission

Admission — 3
Tuition & Fees — 8
Financial Aid — 10

ADMISSION

Admission Policy

The Williamsport Area Community College is committed to serving all who may benefit from the programs offered. The College operates under an "open-door" admissions policy and is open to any person who has a high school diploma or its equivalent. Individuals age 18 or older who do not have a high school diploma or the equivalent may be admitted as "special students."

Admission into several programs of study is based upon the applicant's meeting the requirements (including necessary academic skills and prerequisites) of the specific program of study. The College reserves the right to deny admission or readmission to any student if, in the opinion of College authorities, his/her admission is not in the best interest of the student or the College.

The Williamsport Area Community College offers equal opportunity for admission to anyone regardless of age, race, color, creed, sex, national origin, or handicap.

The College will provide an opportunity to develop the basic skills necessary to enroll in associate degree and certificate courses to those who demonstrate such need through the College's Testing and Placement program.

Acceptance and Admission Preference

The Williamsport Area Community College will grant acceptance based on the date the applicant's file (i.e., application for admission, application fee, transcripts/GED, and, when appropriate, testing material) is completed in the Admissions Office, with the exception that sponsor district applicants whose files are complete by the dates below will have preference for admission.

The College will give preference for admission to the College to residents of sponsoring school districts. The College will grant preference for admission to residents of sponsor districts until February 1 for the fall semester and until October 1 for the spring semester.

Admission Procedure

All graduates of accredited secondary schools in the Commonwealth of Pennsylvania are eligible for admission to the College as regular students. Admission into a specific curriculum is based upon evidence of scholastic readiness for the curriculum.

1. Application and Application Fee

   All applicants for degree and certificate programs must submit an application for admission together with a non-refundable application fee. This fee is charged only once. The Director of Admissions, upon written request from a high school counselor or State agency, has the authority to waive the fee when it can be determined that the fee causes financial hardship to an individual.

2. High School Graduation

   a. High school students must submit a partial transcript during their senior year. However, a final transcript of high school credits or proof of graduation from an approved or accredited high school with a four-year course of study must be on file before a student can attend classes.

   b. High school graduates must submit a final transcript of high school credits or proof of graduation from an approved or accredited high school with a four-year course of study.

   c. Applicants age 18 or older may be admitted to the College on the basis of an equivalency diploma, provided that the diploma is issued upon a minimum average General Equivalency Diploma (GED) test score of 45. Under special circumstances, applicants 17 years of age may be considered for admission with a minimum average GED test score of 45.

   d. Anyone age 18 or older who has not met the requirements of sections a., b., or c. above may be considered for admission into a program as a "special student" provided he/she has the appropriate aptitudes and abilities to enter the College.

   e. Early Admission: a student of exceptional ability who has completed the eleventh grade in an accredited high school may be enrolled as a full-time or part-time student at WACC in either a degree or certificate program during what would normally be the senior year of high school. To qualify for such early admission, the chief administrative officer of the high school must approve and submit the application, together with an official high school transcript, to the Admissions Office for determination of eligibility for the specific degree or certificate program desired. Upon satisfactory completion of the first year in a full-time college program, an early admission student can qualify for a regular high school diploma.

3. Placement Examinations

   To insure that applicants have the entry level skills needed for their programs, all full-time accepted students are required to take the College's placement examinations. The College uses these examinations to assess applicants' skills in math, English and reading. Based on the results of their tests, students will be placed in the appropriate math, English, and reading courses. The College reserves the right to recommend another program or require developmental courses if the test results indicate that an applicant does not have the required academic entry skills.

4. Health Records Requirement

   Each student is required, as a condition of admission, to complete and submit his/her medical history on a health record card provided by the Admissions Office. The health card should be submitted well in advance of the intended term of entry in order to accommodate any special need and must be received before the student can begin classes.

5. Tuition Deposit

All full-time applicants who have been accepted as degree-seeking or certificate-seeking students must submit a non-refundable $50 tuition deposit. The tuition deposit will be credited to an individual's first semester tuition. If an individual does not enroll, the tuition deposit is non-refundable and cannot be credited toward another semester.

The tuition deposit will hold a space in class until 10 days prior to late registration. Students who have not fulfilled their total financial obligations for the semester 10 days prior to late registration will forfeit their class space. This may result in someone from the College's waiting list taking their space in the program.

6. Additional Requirements

In addition to the College's general admission policies and requirements, applicants to the Aviation Maintenance Technician, Dental Hygiene, Operating Room Technology, Practical Nursing, Radiological Technology and Respiratory Therapy programs must also meet the following requirements:

a. All applicants must have graduated from an accredited secondary school or have successfully completed the General Education Development Examination (GED).

b. All applicants must successfully complete the College's Placement Tests. All deficiencies, when identified through testing, must be remediated before acceptance into the program.

c. Except for aviation, all qualified applicants will be required to discuss their career choice and expectations of the program during an interview. A hospital observation is required for Radiological Technology and Respiratory Therapy.

d. All Dental Hygiene, Practical Nursing and Respiratory Therapy applicants must take additional standardized tests. The results will be used in the final review of the applicant's file to determine acceptance.

e. Application, testing, and interviews for Respiratory Therapy must be completed by March 1.

Admission of International Students

The Williamsport Area Community College believes that the presence of a balanced representation of international students on campus will enrich the educational environment for all students. The College is authorized under Federal law to enroll non-immigrant alien students on "F-I" student visas. Application and all supporting documents must be received in the Admissions Office at least two weeks prior to the day of late registration for the term of entry.

All transcripts, test scores, and other credentials become the property of the College and will not be returned or transferred to another institution.

In addition to the College's general admission requirements, international students must fulfill the following requirements:

1. All international students whose native language is not English are required to take the Test of English as a Foreign Language (TOEFL).

2. Applicants must submit an affidavit of support for themselves and for all members of their family who will accompany them to Williamsport. This requires that applicants certify that they have adequate funds to attend college and will not become a public charge. Failure to provide this information may result in the denial of the applicant's application for an "F-I" student visa.

3. All international students who are accepted must take the College's placement tests. Placement into the appropriate level of courses will be determined by the tests. International students must arrange to be on campus approximately one week prior to registration for the proposed term of entry. Failure to complete placement tests may result in denial of acceptance into programs.

4. International students must become familiar with the regulations of the Immigration and Naturalization Service and assume responsibility for complying with test regulations.

Re-Enrollment

Former WACC students who wish to be readmitted must request a re-enrollment application from the Admissions Office. This application must be completed before any admission status can be granted. Students applying for readmission do not have to submit an application fee. They do, however, have to submit a health records card.

1. Re-enrollment in the Same Program

   When a student returns to WACC after two years absence and re-enrolls in the same program in which he/she was last enrolled, all course work previously completed will be reviewed on a course by course basis to determine whether it meets the present graduation requirements of the program. All courses completed will be shown on the student's transcript. However, the cumulative average will be recalculated using only grades for courses which are appropriate for the present program. Re-enrolled students are required to meet those graduation requirements in effect at the time they re-enroll unless the student re-enrolls fewer than two years after he/she last attended. Such students are required to meet those graduation requirements in effect at the time of original attendance.

2. Re-enrollment in a New Program

   When a student returns to WACC and re-enrolls in a different program from the one in which he/she was last enrolled, each course previously taken will be evaluated to determine whether it meets the requirements of the new program. Only credits earned in the prior program which are appropriate for the new program will be used in recalculating the new cumulative average. Students re-enrolling in a new program are required to meet the graduation requirements in effect at the time they re-enroll.

   Exception: Students re-enrolling less than two years after they last attended must meet any requirements such as required developmental courses which were stipulated at the time they originally enrolled.

Transfer Students

Students who wish to transfer to the The Williamsport Area Community College must follow the procedure below:

1. Complete steps listed under Admission Procedure, with the exception of "High School Graduation."

2. Ask all college(s) previously attended to send an official transcript to The Williamsport Area Community College Admissions Office. WACC may also request a high school transcript.

Transfer Credit

Transfer credit includes credit for courses earned at another institution, college credit earned before high school graduation, service credit, United States Armed Forces Institute (USAFI) credit, and credit earned through the College Level Examination Program (CLEP).

A maximum of 30 transfer credits may be applied toward a degree or certificate. Courses to be considered for transfer must have been completed with a grade of "C" or better. However, if a student earns a cumulative "C" average or better in sequential courses, an exception may be made based on the evaluation of the courses. A copy of the evaluation of transfer credit will be sent to the student. All transfer credit will appear on the student's transcript after the student successfully completes one semester of academic work on WACC's campus. Transfer credit will appear on the transcript with credit value only. Transfer students will enroll without any cumulative grade point average. Transfer students must complete their last semester at WACC unless this requirement is waived by the Dean of Academic Affairs. Requirements for the evaluation of different forms of transfer credit are listed below.

1. Transfer from Another Institution

   All credits earned at a previously attended institution(s) will be evaluated for transfer credit. The student must send WACC's Admissions Office an official catalog description of each course to be evaluated and a description of the grading codes (if the grade codes are not defined on the transcript) from each institution from which courses are to be evaluated. These materials must consist of either of the following: the institution's catalog or a photocopy of the course descriptions and the grade codes description taken from the institution's catalog.

2. College Credit Earned Before High School Graduation

College credit earned before high school graduation will be evaluated only if the college where the work was taken issues an official college transcript. Students who have earned college credit before graduation from high school must follow the procedure defined under "Transfer from Another Institution."

3. Service Credit

Veterans who have served 12 consecutive months of active military duty will be granted credit for health and/or physical education (if required in their program). The student must submit a copy of his/her report of separation (DD-214) and complete a waiver for physical education with the Physical Education Office.

4. United States Armed Forces Institute Credit (USAFI)

WACC may grant credit for USAFI credit. An official transcript must be mailed directly from USAFI in Madison, Wisconsin to WACC's Admissions Office. Credit will be granted for those courses which are substantially comparable to courses offered at WACC. If the student's program at WACC includes electives, elective credit will be granted for those courses which are not comparable.

5. College Level Examination Program (CLEP)

The College will examine CLEP results and may grant college credit to individuals who score at least in the 50th percentile rank on the CLEP exam. The student must provide an official copy of his/her CLEP scores to WACC's Admissions Office. The College will determine whether credit earned through CLEP will be issued for required credit courses or as elective credit.

Non-Degree Students

A student who does not wish to pursue a degree or certificate program is not required to make a formal application for admission or to file credentials. If, at a later date, a non-degree student desires to enroll in a degree or certificate program, an application for admission, together with other required credentials, must be submitted to the Admissions Office.

Housing

Students are responsible for making their own housing arrangements. The Housing Coordinator, located in the Admissions Office, Klump Rm. 104, maintains a list of available housing facilities for men and women. Prospective students are urged to make arrangements for housing as soon as possible after being admitted. A booklet containing guidelines on obtaining housing is available from the Housing Coordinator, Klump Academic Center, Rm. 104. The College does not sponsor, approve, disapprove, evaluate or supervise the listed facilities. An agreement for renting is solely between the landlord and student.

Health Services

A dispensary, staffed by a registered nurse, is open Monday through Friday from 8 a.m. to 3:30 p.m. First aid, health counseling, and assistance in obtaining private health care is available. Costs for private health care are the student's responsibility.

Student Accident Insurance—1981-1982

The College presently provides student accident insurance for all full-time students. Students are covered while in class, going to and from class, and during participation in all College-related activities. All full-time students have the option to extend this coverage, at their own expense, to 24-hour coverage. They may also purchase sickness insurance under the same policy. Part-time students have the option of purchasing low cost accident insurance for a minimal amount.

Facilities

For information regarding College facilities, including access for the handicapped, contact the Admissions Office, Klump Academic Center, Room 104.

Student Retention Data

Persons interested in obtaining data on student retention (number of students who enroll at the College and number who actually complete their program) should contact the Director of Student Records, Klump Academic Center, Room 110.

TUITION AND FEES

Full-Time Students

A full-time student is defined as anyone enrolled in twelve or more credit-hours per semester.

Application Fee

Applicants for status as full-time students in degree or certificate programs must include a non-refundable $15 Application Fee with their application. You are required to pay this non-refundable fee only once.

Tuition Deposit

All applicants who have been accepted as full-time degree or certificate students must make a $50 non-refundable Tuition Deposit to hold a class reservation in the first semester for which they have applied.

If you enroll at the designated time, the deposit will be credited to your first semester's tuition. If you do not enroll at the designated time, the deposit is non-refundable and can not be carried forward to another semester.

Tuition and Related Fees—1981-82**—Per Semester

Tuition and related fees are governed by your area of residence. The four categories of residence and the tuition and fees for each are:

1. **WACC Sponsoring School District**

   If you reside in a school district which sponsors The Williamsport Area Community College, you must have the secretary of your local school board complete a Certificate of Sponsorship to be eligible for Sponsoring School District tuition rates. The form should be mailed to the Bursar's Office after you have been accepted and as soon as possible prior to registration. (Sponsor School Districts are listed in the front of this Catalog).

	FULL-TIME	PART-TIME*
Tuition	$459.00	$38.25
Service Fee	none	none
Activity Fee	$ 15.00	none
TOTAL	$474.00	$38.25*

**Tuition and Fees are subject to change without notice.

2. **Pennsylvania School District Sponsoring Another Community College**

   If you reside in a school district which sponsors another Pennsylvania Community College, you must obtain permission, IN WRITING, from the Board of Trustees of that particular institution to qualify for Sponsoring School District tuition and fees. If you do not obtain permission, you will be charged the same tuition and fees as Non-Sponsor students.

	FULL-TIME	PART-TIME*
Tuition	$459.00	$38.25
Service Fee	$115.00	$ 9.50
Activity Fee	$ 15.00	none
TOTAL	$589.00	$47.75*

3. **Non-Sponsoring Pennsylvania School District**

   If you reside in a Pennsylvania school district which does not sponsor a Pennsylvania Community College, you will pay the following tuition and fees:

	FULL-TIME	PART-TIME*
Tuition	$ 918.00	$76.50
Service Fee	$ 115.00	$ 9.50
Activity Fee	$ 15.00	none
TOTAL	$1048.00	$86.00*

4. **Out-of-State Resident**

   Out-of-State students will pay the following tuition and fees:

	FULL-TIME	PART-TIME*
Tuition	$1377.00	$114.80
Service Fee	$ 230.00	$ 19.00
Activity Fee	$ 15.00	none
TOTAL	$1622.00	$133.80*

*Per semester hour of credit or equivalent.

Fees for Students Enrolling for Overload Credits

With the exception of prescribed overloads for Practical Nursing and Aviation Maintenance Technician programs as described in the College catalog, a degree or certificate student enrolled for more than 18 credits will be charged the current student tuition rate per credit for each credit over 18.

Deferred Payment

The College shall not knowingly accept a partial payment from any student except as required for tuition deposits, financial aid plans, or within the guidelines established by the Board of Trustees' policy for deferred fee status.

Any student whose fee is in arrears after the first day of classes shall be subject to a $20 deferred processing fee.

Students who are unable to pay tuition and fees in full by the due date, may elect to pay a partial payment as determined by the College and pay the remaining portion in two equal installments at 30-day intervals following the beginning of the semester. A $20 processing fee will be charged for these services. Nullification or adjustment of financial aid awards shall not alter the student's obligation to complete installment payments to the College.

Students who fail to meet their financial obligations under this plan shall be administratively withdrawn. Such termination will not cancel the student's financial obligation to the College. Students participating in an installment plan will have their grades and transcripts held until their accounts are settled.

Books and Supplies

Expenses for books and supplies will vary considerably from program to program. College policy strives to keep your expenses as low as possible by operating the College Bookstore on a low-cost basis. For full-time students the cost can be as high as $150 per semester.

Tools

When you have been accepted for a particular program, the Admissions Office will provide you with an appropriate list of tools which will be used during your course of study. It is recommended that you do not buy any tools or protective clothing for any course before you attend the first class session. Tool costs vary greatly, depending on your program. Prospective students should contact the Admissions Office for a list of estimated costs for each program. It should be emphasized that these tools will be your personal property, an investment you will use with pride throughout your career.

Transcripts

The student's grade report is an unofficial transcript which shows all course work completed by the student. Students may use their grade report when an unofficial transcript is needed.

Students will be charged $1.00 for each additional transcript. All requests for additional transcripts must be submitted in writing. The request must contain the following information: the student's name while attending WACC, the student's address and social security number, the dates of enrollment, the name of the program(s) in which the student was enrolled, and a complete address to which the transcript is to be sent. If the transcript is sent to the student or to his/her address, it is considered an unofficial copy. Official transcripts are only those transcripts sent to another institution, agency, or employer.

Graduation Fees

Any students who wish to receive an engraved diploma or certificate when they graduate must pay a $5.00 fee when they petition to graduate. If a student orders a diploma or certificate after the advertised date for ordering a diploma (i.e., 2 months prior to the graduation date), the student must pay a special processing fee of $10.00.

If a graduating student does not wish to receive an engraved certificate or diploma, he/she will not be charged the graduation fee but must still file a petition.

Veterans Information

The College has been approved for the education and training of veterans. The Student Records Office provides counseling and assistance to veterans. All veterans must register with the Student Records Office in order to collect G.I. benefits or to initiate action concerning the Veterans' Administration. Veterans should bring a copy of their DD 214 and, when applicable, their marriage certificate and children's birth certificates, to the Student Records Office at their first interview. The Student Records Office maintains a complete supply of forms for such purposes.

The College does not handle advance payment requests.

Withdrawals and Refunds

Charges for tuition are refundable upon official withdrawal from the College as explained in the Academic Information section. Application fees, service fees, activity fees, and tuition deposits are not refundable. A "Request for Refund" form can be obtained from the Student Records Office. In order to obtain a refund the "Request for Refund" form and the necessary withdrawal forms (i.e., "Student Status Change Form") must be submitted at the same time. (See page 120 for withdrawal procedures.)

Refunds of tuition will be made according to the following schedule for fall and spring semesters:

Prior to the first day of classes	100% Refund
First week of classes	80% Refund
Second week of classes	70% Refund
Third week of classes	60% Refund
After third week of classes	No Refund

Refunds will be made according to the following schedule for the summer semesters:

Prior to the first day of classes	100% Refund
7% of total instructional hours	80% Refund
13% of total instructional hours	70% Refund
20% of total instructional hours	60% Refund
After 20% of total instructional hours	No Refund

FINANCIAL AID

Recognizing that the cost of education is often greater than the student and his/her family can afford without help, the Financial Aid Office operates to help students obtain financial assistance through a variety of aid programs:

- Grants
- Scholarships
- Loans
- College Work-Study Program
- Veteran's Benefits
- Social Security Benefits
- Vocational Rehabilitation Sponsorship
- Part-Time Employment

Every student is encouraged to thoroughly explore each of the above programs, and to contact the Financial Aid Office for assistance in obtaining and completing applications for aid.

Employment

Students interested in part-time employment other than the College Work-Study program should contact the College Placement Office for further information.

Special Attention

Deadlines

Students who want the fullest consideration for all awards, should have all needed application materials complete and on file in the Financial Aid Office as soon as possible. For the 1982-83 year, for example, completed applications for some forms of aid should be on file by March 1, 1982. Applications received after this date will be processed and students filing late will be considered for aid, but only after other applications received by the deadline have been reviewed and awards made.

An exception to the above deadline is made for the Guaranteed Student Loan Program. Loan applications may be submitted at any time during the year, but should be filed early enough to allow for the 6 to 8 week processing time prior to loan approval and release of funds to the applicant.

Need Analysis Forms

To determine a student's financial eligibility for awards, especially Supplemental Grants and College Work-Study awards, a review of the family financial situation must be completed.

At WACC, the Pennsylvania Higher Education Assistance Agency system is used for need analysis purposes. These forms can be obtained from WACC's Financial Aid Office, high schools and the state agency.

Good Standing and Academic Progress for Students Receiving Financial Aid

Good Standing: For all federal student assistance programs, a student shall be in "good standing" so long as he/she is eligible for continued attendance at the College.

Academic Progress: The following policy shall apply to all students receiving financial aid from federal or state student assistance programs:

1. BEOG/SEOG/CWS (Federal Programs)

   A student shall be considered to be making "satisfactory progress": if he/she successfully completes 24 credits for each academic year he/she enrolls as a full-time student and receives aid from BEOG, SEOG, or CWS Programs. Full-time students who complete less than 24 credits per academic year for which aid is received, may appeal the determination of ineligibility by writing to the Director of Financial Aid or his/her designee, stating the basis for appeal.

   Exceptions will be made based on extenuating circumstances including, but not limited to, documented illness requiring withdrawal, or change of program with evidence of probable success. The Director or designee will inform the student in writing of the decision and the duration of time or conditions under which such exception may be made. The student may request a review of his/her circumstances and the Director's decision in a meeting of the student, the Dean of Student Development and the Director of Financial Aid.

   Any part-time student who receives aid and who fails, withdraws from, or receives an incomplete in two or more courses in which he/she was enrolled during an academic year of enrollment (or the equivalent), shall be ineligible for further aid until he/she completes courses equivalent in credits or hours to the number which he/she did not successfully complete.

   Federal regulations further provide that if the institution determines at the beginning of a payment period that the student is not making satisfactory progress but is able to reverse that determination before the end of the payment period, the student may receive payments for the entire period. However, if the reversal of the original determination does not occur until after the end of the payment period, no retroactive payments may be made for that payment period.

2. PHEAA

   PHEAA regulations provide that for each year of a PHEAA Grant, a student must successfully complete 24 credits for each year of PHEAA Grant. Appeals may be made directly to PHEAA. This policy is subject to revision by PHEAA.

3. GSL

   PHEAA/Federal regulations require that we certify academic level in the student's program. A student will be considered first level if he/she has not yet completed 24 credits toward the degree or certificate. Program regulations currently limit the amount of loan to $2500 per academic level for dependent students and possibly $3,000 for independent students. Appeals may be made to PHEAA directly.

4. PLUS

   Current regulations allow parents of an undergraduate to borrow up to $3,000 per year to meet the difference between the student's aid and educational costs.

NOTE:

BEOG	=	Basic Educational Opportunity Grant
SEOG	=	Supplemental Educational Opportunity Grant
CWS	=	College Work-Study Program
PHEAA	=	Pennsylvania Higher Education Assistance Agency
GSL	=	Guaranteed Student Loan
PLUS	=	Parents Loan for Undergraduate Students

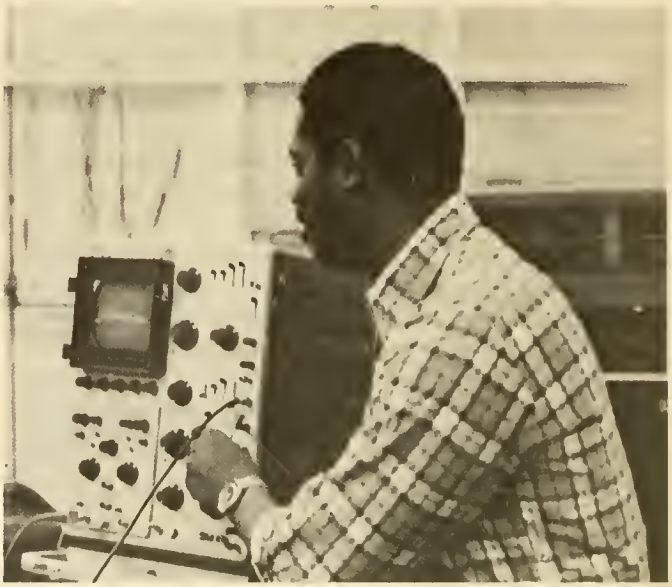
Further Information and Assistance with Applications

Further information about all of the financial aid programs listed above can be obtained from the Financial Aid Office at the address below. The College's Financial Aid Brochure, which provides more information about all of these programs, should be obtained at this address and used as a guide in applying for aid. For information and applications, call, write, or visit:

Financial Aid Office
The Williamsport Area Community College
1005 West Third Street
Williamsport, Pennsylvania 17701
(717) 326-3761, Ext. 241

Programs

Associate Degrees — 13
Certificates — 14
Divisions & Programs — 15
Programs — 17
Associate of Applied Arts, Associate of Applied Sciences, and Certificate Programs — 17
College & University Transfer Programs — 65
Exam Preparation — 71
Lewisburg Federal Penitentiary — 72



ASSOCIATE DEGREES

You can earn one of three associate degrees at The Williamsport Area Community College. All of them can be used to help you gain immediate employment or to serve as the base from which you can pursue further studies. Flexibility in each degree program gives you maximum freedom in meeting your individual needs.

The Associate of Applied Arts (AAA) is offered in Broadcasting, Journalism, and Advertising Art. These programs offer students the opportunity of gaining technical and professional skills and/or securing the background to transfer to a four-year college.

The Associate of Applied Science (AAS) degree program emphasizes technical career skills. These programs may be transferred to a four-year program of study (many four-year colleges are accepting AAS degrees in full or partial transfer credit toward a bachelor's degree.)

The Associate of Arts (AA) is a program primarily designed to parallel the first two years of a liberal arts education at a four-year college. Credits earned can usually be transferred toward the first two years of a bachelor's degree.

Associate of Applied Arts

If you want to gain knowledge, proficiency, and skills in a particular vocational or career area, you can earn an Associate of Applied Arts degree. Each particular program has prescribed courses that you must complete in order to graduate.

The College offers Associate of Applied Arts (AAA) degrees in the following areas:

Communications, Humanities, and Social Sciences
- Broadcasting
- Journalism

Engineering and Design Technologies
- Advertising Art

Associate of Applied Science

If you want to gain knowledge, proficiency, and skills in a particular technical, career, or vocational area, you can earn an Associate of Applied Science degree. Each particular program has prescribed courses that you must complete in order to graduate.

The College offers Associate of Applied Science (AAS) degrees in the following areas:

Building Technologies
- Air Conditioning/Refrigeration
- Carpentry & Building Construction Technology

Business & Computer Science
- Accounting
- Business Management
- Computer Science Technology
- Marketing/Merchandising
- Secretarial Science
  - Executive
  - Legal
  - Medical
- Technology Studies

Earth Science
- Agribusiness
- Floriculture—
  - Ornamental Horticulture Technology
- Forest Technology
- Nursery Management—
  - Ornamental Horticulture Technology
- Wood Products Technology

Electric/Electronics
- Electrical Technology
- Electronics Technology

Engineering & Design Technologies
- Architectural Technology
- Civil Engineering Technology
- Engineering Drafting Technology
- Graphic Arts
- Machine Tool Technology
- Technical Illustration
- Tool Design Technology

Mathematics, Science, and Allied Health
- Dental Hygiene
- Dietetic Technician
- Food & Hospitality Management
- Radiologic Technology

Transportation Technologies
- Automotive Technology

Associate of Arts
(College and University Transfer)

The General Studies and Individual Studies Program

The Williamsport Area Community College offers an Associate of Arts (AA) degree in both a General Studies Program and an Individual Studies Program. Both programs are designed to provide the student with the opportunity to:

1. Participate in a planned educational program of studies leading to an Associate Degree.

2. Elect, from a broad spectrum of offerings, those courses most appropriate to individual academic and career goals.

3. Interact on a regular basis with the College staff and fellow students in the cultural, social, and recreational activities that provide for intellectual growth and emotional maturity.

4. Demonstrate a mastery of basic quantitative concepts and skills.

5. Display in written and oral presentations the ability to communicate clearly, correctly, and convincingly.

The General Studies Program is designed primarily to be transferable into four-year college degree programs and to provide the opportunity to begin academic course work leading to many professional careers. Specific curriculum guides have been developed for the following career areas:

Business Administration
Communications Emphasis
Education Emphasis
Math-Science Emphasis
Pre-Law Emphasis
Pre-Medical Emphasis
Pre-Theological Emphasis
Social Work Emphasis

The Individual Studies program provides maximum flexibility in designing an associate degree program to meet individual student needs. The Individual Studies program also offers students waiting for an opening in a particular career-oriented program the opportunity to begin work leading to a degree by taking appropriate available courses.

CERTIFICATE IN SPECIAL FIELD OF STUDY

These programs are occupational in nature and are heavily skills oriented. They are not primarily designed for transfer but in certain cases can be transferred to some colleges. Certificate programs require the equivalent of two to four semesters of full-time course work in which you must maintain a 2.00 grade-point average.

A feature of these Certificate in Special Field of Study programs is the Optional Elective. As the name implies, an Optional Elective can be chosen to broaden the basic academic work required of all college students. You are urged to make use of the opportunity to enrich your educational experience.

Certificates are offered in the following areas:

Building Technologies
Air Conditioning/Refrigeration
Construction Carpentry
Plumbing and Heating

Business and Computer Science
Clerical Studies
Computer Operator

Earth Science
Service & Operation of Heavy Construction Equipment

Electric/Electronics
Electrical Construction
Office Machine Repair (not offered 81/82)

Engineering & Design Technologies
Industrial Drafting
Machinist General
Printing
Sign Painting
Welding

Mathematics, Science & Allied Health
Operating Room Technician (Surgical Technology)
Practical Nursing
Respiratory Therapy Technician

Transportation Technologies
Auto Body Repair
Automotive Mechanics
Aviation Maintenance Technician
Diesel Mechanics

DIVISIONS AND PROGRAMS

BUILDING TECHNOLOGIES
Division Director, George C. Krause

Air Conditioning/Refrigeration (RA)
Carpentry & Building Construction Technology (CB)
Construction Carpentry (CC)
Plumbing and Heating (PL)

BUSINESS & COMPUTER SCIENCE
Division Director, Dr. Donald B. Bergerstock

Accounting (BA)
Business Management (BM)
Clerical Studies (BT)
Computer Operator (CO)
Computer Science Technology (CS)
Marketing/Merchandising (MM)
Secretarial Science (BS):
- Executive
- Legal
- Medical

Technology Studies (TS)

College & University Transfer Program
- Business Administration

Exam Preparation
- Real Estate

COMMUNICATIONS, HUMANITIES & SOCIAL SCIENCES
Division Director, Dr. Richard M. Sweeney

Broadcasting (BR)
Journalism (JO)

Service Courses
- Advertising
- Economics
- Education
- English
- German
- Government
- History
- Philosophy
- Psychology
- Sociology
- Spanish

EARTH SCIENCE
Division Director, Joseph G. Sick

Agribusiness (AG)
Floriculture (FL) (Ornamental Horticulture Technology-OH)
Forest Technology (FR)
Nursery Management (NM) (Ornamental Horticulture Technology-OH)
Service & Operation of Heavy Construction Equipment (SO)
Wood Products Technology (WD)

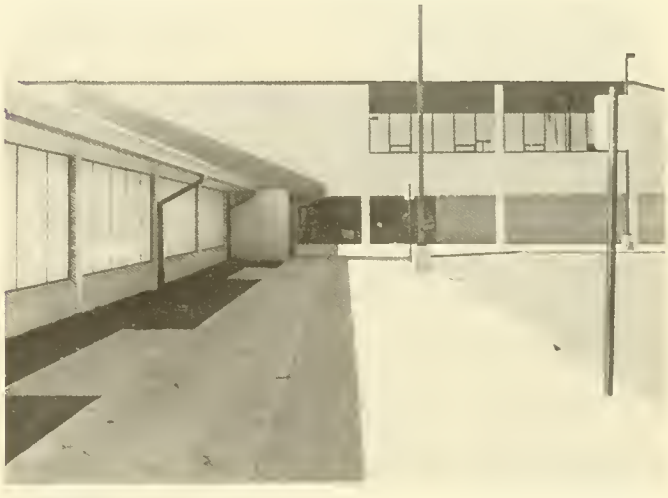
ELECTRIC/ELECTRONICS
Division Director, Donald O. Young, Sr.

Electrical Construction (EW)
Electrical Technology (EL)
Electronics Technology (ET)
Office Machine Repair (OR) (not offered 81-82)

ENGINEERING & DESIGN TECHNOLOGIES
Division Director, Dr. Paul L. McQuay

Advertising Art (AR)
Architectural Technology (AT)
Civil Engineering Technology (CT)
Engineering Drafting Technology (ED)
Graphic Arts (GA)
Industrial Drafting (ID)
Machine Tool Technology (TT)
Machinist General (MG)
Printing (GP)
Sign Painting (SP)
Technical Illustration (TI)
Tool Design Technology (TD)
Welding (WE)

Exam Preparation
- Engineer In Training



The Carl Building Trades Center and the Learning Resources Center were completed in late 1980.

MATHEMATICS, SCIENCE & ALLIED HEALTH
Division Director, Michael P. Nestarick

Dental Hygiene (DH)
Dietetic Technician (DT)
Food & Hospitality Management (FH)
Operating Room Technician
(Surgical Technology) (OT)
Practical Nursing (NU)
Radiologic Technology (RT)
Respiratory Therapy Technician (HC)
Service Courses
Biology
Chemistry
Environmental Science
Geography
Geology
Mathematics
Medical Terminology
Physics

Director, Physical Education, Thomas E. Vargo

Health & Physical Education

TRANSPORTATION TECHNOLOGIES
Division Director, Marlin M. Roush

Auto Body Repair (AB)
Automotive Mechanics (AM)
Automotive Technology (AU)
Aviation Maintenance Technician (AC)
Diesel Mechanics (DM)

COLLEGE & UNIVERSITY TRANSFER PROGRAMS
Michael P. Nestarick
Dr. Richard M. Sweeney

General Studies
Communications Emphasis
Education Emphasis
Math-Science Emphasis
Pre-Law Emphasis
Pre-Medical Emphasis
Pre-Theological Emphasis
Social Work Emphasis

Individual Studies

CENTER FOR LIFELONG EDUCATION
Dean, Dr. Russell C. Mauch

Non-Credit Courses & Programs
Business & Industrial Programs
Evening Courses

Director, Summer Sessions & Off-Campus Programs,
Thomas E. Vargo

Summer Sessions
Off-Campus Programs & Courses
Special Programs*
Heating and Air Conditioning (HA)
Small Engine Repair (SE)

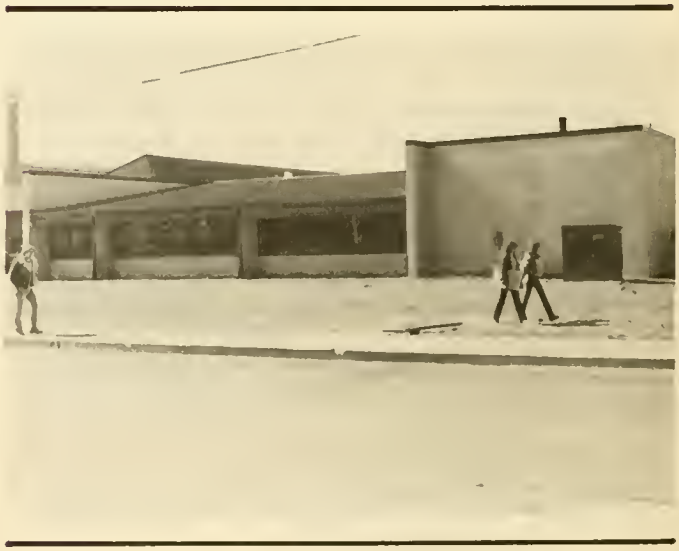
COOPERATIVE EDUCATION (CED)
Director, William C. Bradshaw

Courses in conjunction with Divisions and Programs

DEVELOPMENTAL STUDIES (RDG)
Director, R. Dean Foster

Courses

*Given at Lewisburg Penitentiary only



The new Avco-Lycoming Metal Trades Center houses the Welding program.

Accounting (BA)
Associate Degree/Two Years

This program provides a broad business background with specialization in accounting. It begins on the elementary levels of accounting and business and advances to more complex levels.

Types of Jobs: Public, private, government, and corporate accounting, cost accounting, tax consultant, auditor, comptroller.

FIRST SEMESTER

			Credits
ACC	112	Accounting I*	3
MGT	110	Principles of Business*	3
MGT	111	Business Mathematics	3
SEC	111	Typewriting I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
ACC	122	Accounting II	3
ACC	125	Income Tax Accounting	3
CSC	118	Fundamentals of Computer Science*	3
MGT	230	Business Communications	3
PED		Physical Education	1
		Social Science Elective	3
			16

THIRD SEMESTER

			Credits
ACC	231	Cost Accounting	3
ACC	232	Intermediate Accounting I	3
MGT	231	Business Law I*	3
		Computer Science Elective*	3
		Elective*	3
			15

FOURTH SEMESTER

			Credits
ACC	244	Intermediate Accounting II	3
MGT	241	Business Law II	3
ECO	201	Principles of Economics*	3
ENL	202	Fundamentals of Speech	3
		Elective*	3
			15

*Equivalent AIB (American Institute of Banking) courses may be substituted with Division Approval.

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Accounting program is to prepare the student for employment in the accounting field – public, private, and government. Alternatives may be to pursue advanced study or to add to the competencies of those currently employed in the field.

The graduate should be able to:

1. identify and apply generally accepted accounting principles.
2. organize, prepare, and interpret financial data and statements.
3. demonstrate skill in effective oral and written communication.
4. use and interpret federal and state income tax laws applicable to the individual and sole proprietor.
5. identify and apply generally accepted auditing standards.
6. identify the legal aspects affecting business.
7. apply computer knowledge and techniques in the preparation and analysis of financial statements and data.
8. apply human relations skills in the business environment.
9. apply general knowledge of the social sciences, and possess an awareness of their effect on our society.
10. identify the need for physical fitness and positive leisure activities.

Advertising Art (AR)
Associate Degree/Two Years

This program prepares students for employment in advertising art and related fields. The program provides skills in drawing, painting, designing, illustrating, coloring, paste-up, rendering, composing, layout, lettering, sketching, and proper use of tools, equipment, and materials. Related courses in journalism, photography, graphic arts, and courses in English, mathematics, and history are included to increase the student's career opportunities. Some art background is desirable.

Types of Jobs: Advertising artist, art director, layout artist, renderer, letterer, illustrator; mechanical work, general board work.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
ART	111	Basic Drawing	3
EDT	101	Mechanical Drawing	2
GCO	515	Layout and Design	3
JOU	113	Principles of News Photography	3
HIS	111	Western Civilization I	3
PED		Physical Education	1
			15

SECOND SEMESTER

			Credits
ART	231	Color and Design	3
GCO	525	Process Camera	3
ENL	111	English Composition I	3
MTH	101	Introduction to Mathematics I	3
PED		Physical Education	1
		Elective - Humanities/Social Sciences	3
			16

THIRD SEMESTER

			Credits
ART	121	Basic Painting	3
ART	232	Lettering and Layout	3
ART	233	Introduction to Art	3
GCO	516	Typographic Composition	3
ENL	202	Fundamentals of Speech	3
			15

FOURTH SEMESTER

			Credits
ART	241	Media and Techniques	3
ART	242	Advertising Design	3
ADV	101	Principles of Advertising	3
GCO	526	Film Assembly and Imposition	3
		Elective	3
			15

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the program is to prepare the student for employment in the advertising art field or for transfer to a baccalaureate degree program.

A graduate of the Advertising Art program should be able to:

1. demonstrate the manipulative skills necessary to the advertising artist including dexterity with pen, brush and ink, litho pencil, carbon pencil, pastel, airbrush, art aids, and water base pigments.
2. demonstrate product rendering in the following mediums: watercolor, designers colors, retouch grays, wash, pen and ink, scratchboard, litho pencil, carbon pencil, airbrush, benday screens, and other art aids used in preparing mechanicals.
3. draw and sketch product and spot illustrations, the figure, and objects from nature.
4. demonstrate skills in color and design as applied to such variables as mass, color elements, shape, space, movement, time, and organization.
5. use lettering and layout skills, such as outline lettering, old style, modern and sans serif, free hand lettering, italic, brush, type indication and comp lettering.
6. lay out visual material for reproduction or presentation.
7. demonstrate desirable attitudes and work habits including creative thinking, the ability to solve problems, good artistic judgement, industry, cooperation, responsibility, self-reliance, and appreciation for and understanding of past civilizations.
8. demonstrate knowledge of the fundamentals of the trades with which the advertising artist deals, such as printing and publishing, oral and written communications, and advertising.
9. demonstrate an understanding of and respect for the employer-employee relationship, and an awareness of the necessity for delivering worthy service for value received.
10. demonstrate an awareness and appreciation of the interrelationship among production departments and the contributions each makes to the total product or service.
11. communicate clearly, both orally and in writing.
12. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.
13. demonstrate an understanding of advertising art which is sufficient for entry-level employment and advancement in the field.

Agribusiness (AG)
Associate Degree/Two Years

The program in Agribusiness is designed to prepare men and women for mid-management positions in an agricultural business or to work in production agriculture as farm owners or supervisors.

Types of Jobs: Farm operator or manager; farm supply and garden center; feed, seed, and fertilizer sales; farm credit, financing, and insurance.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
AGB	111	Introduction to Agricultural Business	4
AGB	112	Soils, Fertilizer, and Agricultural Chemicals	4
MGT	110	Principles of Business	3
ENL	111	English Composition I	3
PED		Physical Education	1
			15

SECOND SEMESTER

			Credits
AGB	123	Field & Forage Crop Production	3
AGB	124	Agricultural Financing	3
AGB	125	Dairy Production	3
MGT	111	Business Mathematics	3
MGT	230	Business Communications	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
AGB	236	Animal Production	4
AGB	237	Special Topics in Agribusiness	3
ACC	112	Accounting I	3
ENL	202	Fundamentals of Speech	3
		Elective-General*	3
			16

FOURTH SEMESTER

			Credits
AGB	240	Internship/Co-op	3
AGB	248	Farm Management	3
AGB	249	Agricultural Sales and Service	3
ECO	201	Principles of Economics	3
		Elective-General*	3
			15

Co-op Options:
Parallel
Summer

Field trips to area farms and agricultural businesses are included in the agribusiness program.

PROGRAM OBJECTIVES

The general objective of the program is to prepare the student to obtain employment in agriculture-related businesses or to improve and add to the competencies of the person who will return to the home farm.

A graduate of Agribusiness should be able to:

1. write clear, concise, legible, and accurate technical reports using proper language structure.
2. identify oral communication skills, speak logically, and use various types of communication techniques to promote sales and service and to develop leadership.
3. interpret farm records and the principles of management and economics as they apply to the farm, including the principles of financing as applied to agribusiness and the ability to read and interpret computer print-outs.
4. analyze procedures involved in breeding, feeding, housing, and managing a dairy herd.
5. describe the physical and biological properties of soil, the use and general effects of fertilizer, and the proper use of chemicals in crop and livestock production.
6. identify various types of business organizations with regard to planning, organizing, financing, marketing, and other business principles.
7. describe the principles of breeding, feeding, marketing, and management of beef, swine, sheep, and poultry.
8. explain the marketing of agricultural products including the psychology of selling, pricing, and the importance of customer service.
9. demonstrate an attitude of responsibility toward agribusiness and the world of work.
10. utilize appropriate mathematical skills and competencies to solve applied problems in agribusiness.
11. demonstrate an appreciation of physical fitness and lifelong recreational activities.

Air Conditioning/Refrigeration (RA) Associate Degree/Two Years

Students will gain knowledge and receive training in air conditioning, temperature and humidity control, air circulation, duct system design, thermostats, ventilating equipment and automatic controls. Graduates will have a balance of theory and practical knowledge needed for today's air conditioning and environmental control industry. Actual hands on experiences with various equipment breakdowns will be simulated in lab segments of the program. These experiences and related courses will increase students' advancement opportunities.

Types of Jobs: Refrigeration and air conditioning equipment mechanic, estimator, sales representative, air conditioning lab technician, industrial physical plant maintenance and environmental control.
Recommended High School Subjects: Two years of algebra, one year of science.

FIRST SEMESTER

			Credits
ACR	511	Introduction to Refrigeration	5
ELT	531	Air Conditioning/Refrigeration Electricity	6
MTH	103	College Algebra	3
ENL	111	English Composition I	3
			17

SECOND SEMESTER

			Credits
ACR	521	Commercial Refrigeration Systems	4
ACR	522	Installation & Service Problems – Commercial	4
ELT	541	Electric Motors & Refrigeration Controls	5
PHS	500	Physics Survey	3
PED		Physical Education	1
			17

SUMMER TERM

			Credits
ACR	250	Air Conditioning/Refrigeration Work Experience	1

THIRD SEMESTER

			Credits
ACR	231	Theory & Operation of Air Conditioning & Heating Systems	4
ACR	232	Installation & Service Problems – Air Conditioning	5
PSY	111	General Psychology	3
PED		Physical Education	1
		Math/Computer Science Elective	3
			16

FOURTH SEMESTER

			Credits
ACR	241	Air Movement and Ventilation	4
		Technical Elective/Co-op*	3
ENL	201	Technical Writing	3
		Business Elective	3
		General Elective	3
			16

*One technical elective in Air Conditioning/Refrigeration will be offered each spring semester, for example, ACR 242 Solar Heat/Energy Conservation. Students may also choose an elective from another Associate Degree technology program or enroll in Co-op.

PROGRAM OBJECTIVES

The goal of this program is to prepare students for employment in the field of commercial, residential, and industrial air conditioning and refrigeration installation, maintenance, and service.

A graduate of the program should be able to:

1. demonstrate the ability to perform in a variety of air conditioning and refrigeration fields at a technical level, and apply safety standards and new developments in the industry.
2. apply concepts of algebra and physics in the design, development, and analysis of refrigeration and air conditioning equipment and systems.
3. identify and demonstrate correct use of tools, materials, and equipment used in the trade.
4. demonstrate basic knowledge of reading and interpreting blueprints, and be capable of using this information to perform actual installation.
5. demonstrate the skill to troubleshoot air conditioning and refrigeration equipment using standard procedures.
6. write clear, concise, legible, and accurate technical reports using proper language structure as well as demonstrate skill in oral communication as related to the occupation.
7. read and interpret electrical schematics and use this information to perform actual installation.
8. estimate the cost of an installation and design an effective system for a given space and application.
9. demonstrate a responsible attitude in personal relationships with employers, fellow employees, and the world of work.
10. demonstrate an awareness of and respect for customer/employer relations.
11. demonstrate knowledge of hermetic, reciprocating, centrifugal compressors and functions of each.
12. apply basic knowledge of air flow, ventilation, and energy conservation concepts to system design using modern building design and solar energy technology.

The Air Conditioning/Refrigeration programs are individualized self-paced programs which allow students to master skills at their own rate of learning. Students may enroll in the one-year certificate program which focuses on refrigeration skills, or the two-year associate degree program which provides training in both air conditioning and refrigeration.

Air Conditioning/Refrigeration (RA) Certificate/One Year

This program emphasizes reach-in and walk-in units in commercial refrigeration. Students will troubleshoot and repair actual job related breakdowns. The program includes the study of the uses of air conditioning, temperature and humidity control, air circulators and equipment installation. Introductory courses are provided in electricity, electric motors, and theory of refrigeration. The program provides the training necessary to understand and to work with modern air conditioning and refrigeration installations.

Types of Jobs: Refrigeration equipment mechanic (installation, maintenance, repair), refrigeration equipment estimator, equipment sales.

FIRST SEMESTER

			Credits
ACR	511	Introduction to Refrigeration	5
ELT	531	Air Conditioning/Refrigeration Electricity	6
MTH	710	Technical Mathematics I	
		or	3
MTH	103	College Algebra	
ENL	711	Communications	
		or	3
ENL	111	English Composition I	
			17

SECOND SEMESTER

			Credits
ACR	521	Commercial Refrigeration Systems	4
ACR	522	Installation & Service Problems – Commercial	4
ELT	541	Electric Motors & Refrigeration Controls	5
PHS	500	Physics Survey	3
PED		Physical Education	1
			17

PROGRAM OBJECTIVES

The goal of this program is to prepare students for employment in the field of residential, commercial, and industrial refrigeration installation, maintenance, and service.

A graduate of the program should be able to:

1. identify and demonstrate correct use and care of tools, materials, and equipment used in the trade.
2. read and interpret electrical schematics and use this information to perform actual installation.
3. troubleshoot refrigeration equipment using standard procedures.
4. demonstrate familiarity with accepted safety standards and requirements of the industry.
5. write clear, concise, legible, and accurate memos, work orders, and reports.
6. demonstrate a responsible attitude in personal relationships with employers, fellow employees, and the world of work.
7. use elementary math operations (addition, subtraction, multiplication, division, including decimals, fractions, and conversions) as they apply to refrigeration.
8. demonstrate a working knowledge of service and installation of frozen food cabinets, walk-in coolers, ice machines as used in supermarkets and restaurants.
9. be aware of changing air conditioning/refrigeration technology and new skills required.
10. demonstrate a knowledge of heat pump installation and service.

Architectural Technology (AT)
Associate Degree/Two Years

This program provides instruction in architectural drafting principles and practices and in creating residential and commercial working drawings. It includes design fundamentals, structural calculations and site planning theory.

Types of Jobs: Architectural drafting, estimator, detailer, or specification writer in private practice, corporate departments, public bureaus, construction firms, landscape architecture firms, and engineering fields.
Recommended High School Subjects: Two years of algebra, one year of science.

FIRST SEMESTER

			Credits
ARC	111	Statics	3
ARC	112	Architectural Graphics I	4
ARC	115	Working Drawings - Residential	3
ARC	116	Building Materials I	2
ENL	111	English Composition I	3
MTH	103	College Algebra	3
			18

SECOND SEMESTER

			Credits
ARC	122	Architectural Graphics II	3
ARC	121	Structures - Wood	2
ARC	125	Working Drawings - Commercial	3
ARC	232	Building Materials II	3
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
			17

THIRD SEMESTER

			Credits
ARC	236	Design Studio I	5
ARC	237	Seminar in Architectural History	5
ARC	238	Structures - Steel	3
ARC	233	Building Equipment I	3
PED		Physical Education	1
			17

FOURTH SEMESTER

			Credits
ARC	242	Building Equipment II	3
ARC	244	Professional Administration & Contract Documents	3
ARC	246	Design Studio II	6
ARC	247	Structures - Concrete	3
PED		Physical Education	1
			16

PROGRAM OBJECTIVES

The general objective of the Architectural Technology program is to provide students with the academic and practical educational experience which will prepare them for a variety of career options. Entry-level skills are developed to prepare the student for employment as an architectural technician. The program may also serve as a basis for higher education in such disciplines as architecture, architectural engineering, landscape architecture, urban design and planning, interior design and building construction.

A graduate of the Architectural Technology program should be able to:

1. demonstrate understanding and appreciation of visual art.
2. demonstrate an attitude of responsibility toward the wise and efficient use of our natural resources.
3. illustrate mastery of architectural presentations including drawing, drafting, and model building.
4. demonstrate a sense of building structure, materials, and methods of construction.
5. perform first order structural calculations using wood, steel, and concrete.
6. demonstrate working knowledge of the environmental systems of structures including design competency.
7. explain professional practice and administration.
8. demonstrate basic knowledge of architectural design and planning.
9. apply working knowledge of site engineering and design.
10. demonstrate proficiency in architectural terminology and communications, including oral, written, and visual.
11. utilize appropriate mathematical competencies necessary for job performance and for the development of visualization skills and logical thought processes.
12. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Facilities for the Architectural Technology program are located in the new Learning Resources Center.

Auto Body Repair (AB)
Certificate/Two Years

The student masters trade tools and equipment through the study of theory and practical experience in sheet metal repairs, sanding, and application of fillers, primers, and color coatings. Shrinking, stretching, welding, panel installation, interior trim, and glass replacement are also stressed. The student gains skills in frame and steering alignment as well as damage estimating and repair.

Types of Jobs: Shop assignments to any of the areas mentioned: insurance companies, repair shops, dealerships, self-employment.

FIRST SEMESTER

			Credits
ABC	713	Basic Auto Body (8 weeks)	7
ABC	714	Metal Work (8 weeks)	7
MTH	710	Technical Mathematics I	3
			17

SECOND SEMESTER

			Credits
ABC	723	Auto Body Maintenance (8 weeks)	7
ABC	724	Panel Alignment (8 weeks)	7
ENL	711	Communications	3
			17

THIRD SEMESTER

			Credits
ABC	833	Metal Work and Filling (8 weeks)	7
ABC	834	Painting (8 weeks)	7
		Optional Elective	0/3
			14/17

FOURTH SEMESTER

			Credits
ABC	843	Tools, Equipment and Collision Repairs (8 weeks)	7
ABC	844	Painting and Estimating (8 weeks)	7
		Optional Elective	0/3
			14/17

Co-op Options:
Alternating
Parallel
Summer

The classrooms and shop areas for the automotive programs are located in the Parkes Automotive Center.

PROGRAM OBJECTIVES

The general goal of this program is to prepare the student for a successful career in the field of auto body repair, collision appraisal and shop management.

A graduate of the Auto Body Repair program should be able to:

1. write clear, concise, legible, and accurate repair orders, estimates, technical reports, and business letters.
2. demonstrate skill in basic communication and the ability to speak logically; use types of oral communication techniques to promote sales and service and to develop leadership.
3. maintain service records and customer files.
4. identify the problems of an auto body repair shop, including personnel, equipment, and customer relations.
5. diagnose common paint problems and make necessary repairs.
6. make automotive collision repairs to sheet metal components.
7. make repairs to automotive glass, upholstering, trim and related components.
8. demonstrate both efficiency and quality in the field of automotive refinishing.
9. diagnose and repair common malfunctions related to mechanical parts, other than sheet metal, damaged by collision.
10. demonstrate an attitude of responsibility toward auto body repair and the world of work.
11. use elementary mathematical operations (addition, subtraction, multiplication, division) including decimals, fractions, and conversions as they apply to auto body repair.

Automotive Mechanics (AM)
Certificate/Two Years

Theory and manipulative skills, as practiced with modern tools and equipment, are stressed in a program which teaches the student to service and repair light commercial and passenger vehicles. Proficiency is gained in working with power train, steering, brakes, ignition, carburetion, engines, and electrical components and assemblies.

Types of Jobs: General auto mechanic in a dealership, independent garage, fleet operation, service station, self-employed.

FIRST SEMESTER

		Credits
AMC 715	Power Train - Standard (8 weeks)	7
AMC 716	Brakes and Suspension (8 weeks)	7
MTH 710	Technical Mathematics I	3
		17

SECOND SEMESTER

		Credits
AMC 725	Electric and Fuel (8 weeks)	8
AMC 726	Basic Engines (8 weeks)	7
ENL 711	Communications	3
		18

THIRD SEMESTER

		Credits
AMD 634	State Inspection Repairs (8 weeks)	6
	*Service Specialty Courses: student must complete one of the courses of which only two will be offered during a given semester.	6
AMD 635	Automatic Transmission (8 weeks)*	
AMD 636	Air Conditioning (8 weeks)*	
AMD 637	Engine Overhaul (8 weeks)*	
	Optional Elective	0/3
		12/15

FOURTH SEMESTER

		Credits
AMC 844	Vehicle Performance Analysis	13
	Optional Elective	0/3
		13/16

Co-op Options:
- Alternating
- Parallel
- Summer

PROGRAM OBJECTIVES

The goal of this program is to prepare the student for a successful career as an automotive mechanic in a dealership, independent garage, or a self-operated business. The program also provides the academic and practical educational experience which enables students to pass the Pennsylvania Vehicle Safety Inspection written exam for certification as a vehicle safety inspection mechanic.

A graduate of the Automotive Mechanics program should be able to:

1. diagnose and repair common malfunctions of systems and components on popular makes of automobiles.
2. diagnose and repair malfunctions and wear patterns in any two of the following specialized automotive service areas:
   a. engines
   b. automatic transmissions
   c. air conditioning
3. make tests, adjustments, and repairs to engine electrical, fuel, and emission control components.
4. interpret wiring diagrams, test and make repairs to starting, charging, lighting, and accessory systems of vehicles.
5. use elementary math operations (addition, subtraction, multiplication, division) including decimals, fractions, and conversions as they apply to automotive mechanics.
6. demonstrate the ability to write letters of application, resumes, memos, work orders, and reports; recognize current forms and styles of the above.
7. demonstrate an attitude of responsibility toward the automotive service and manufacturing industry and the world of work.

Automotive Technology (AU)
Associate Degree/Two Years

This program presents the advanced theory of operation of automotive systems and components. The theory of operating principles is applied to diagnose both real and hypothetical malfunctions. Service, repair and test procedures with modern equipment and special tools are emphasized. Service specialization and business management may be elected. (On completion of this program the student may transfer to a four-year institution).

Types of Jobs: Dealership service specialist, assistant service manager, skilled jobs in the automotive manufacturing industry, service equipment representative, rebuilding shop assembler, repair shop operator, parts department manager.
Recommended High School Subjects: One course in algebra for career students, two years of algebra for transfer students.
GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
AMD	113	Fuel and Electrical (8 weeks)	5
AMD	114	Engines (8 weeks)	5
EDT	101	Mechanical Drawing	2
MTH	**	Mathematics - Elective	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
AMD	123	Standard Power Train (8 weeks)	5
AMD	124	Brakes, Chassis, and Suspension (8 weeks)	5
ENL	111	English Composition I	3
MTH	***	Mathematics - Elective	3
PED		Physical Education	1
			17

THIRD SEMESTER

			Credits
AMD	232	Service Procedures	11
MGT	247	Small Business Management	3
PHS	500	Physics Survey	3
			17

FOURTH SEMESTER

			Credits
AMD	634	State Inspection Repairs (8 weeks)	6
*Service Specialty Courses: student must complete one of the courses of which only two will be offered during a given semester (all are 8 week courses).			6
AMD	635	Automatic Transmission Repair (8 weeks)*	
AMD	636	Air Conditioning (8 weeks)*	
AMD	637	Engine Overhaul (8 weeks)*	
ENL	201	Technical Writing	3
		Elective - General	3
			18

MATHEMATIC ELECTIVES

MTH	**	For two year career students: MTH 105 - Intermediate Algebra For transfer students: MTH 103 - College Algebra
MTH	***	For two year career students: MGT 111 Business Mathematics or MTH 500 - Technical Mathematics II For transfer students: MTH 104 - College Trigonometry

Co-op Options:
Alternating
Parallel
Summer

PROGRAM OBJECTIVES

The general goal of this program is to prepare the student for a successful career in the fields of automotive service technology, parts and service management, or automotive engineering technology. The program also provides the academic and practical educational experiences which enable students to pass a written exam for mechanic's certification, such as the National Institute for Automotive Service Excellence, and to pass the Pennsylvania Vehicle Safety Inspection written exam for certification as a vehicle safety inspection mechanic.

A graduate of Automotive Technology should be able to:

1. diagnose and repair common malfunctions of systems and components on popular makes of automobiles.
2. diagnose and repair malfunctions and wear patterns in any two of the following specialized automotive service areas:
   a. engines
   b. automatic transmissions
   c. air conditioning
3. relate basic laws of physics and principles of science to automotive systems and components in a manner which leads to trouble-diagnosis or product development.
4. record engineering data in mathematical terms and solve basic problems utilizing technical mathematics, elementary algebra, and trigonometry.
5. interpret engineering data given in the form of numerical quantification such as graphs or charts, algebraic expressions, or proportional relationships.
6. create and interpret fundamental engineering drawings.
7. demonstrate good management practices in relation to automotive service shop, including personnel, equipment, shop layout, and customer relations.
8. maintain automotive service records, dealership warranty procedures, and customer files.
9. demonstrate skill in basic oral communications and the ability to speak logically; use various types of oral communication techniques to promote sales and service and to develop leadership.
10. write clear, concise, and accurate repair orders, technical reports, service advertising copy, business memoranda, and business letters.
11. maintain records necessary for owning and operating a business, explain considerations involved in starting a new business, and state good management practices.
12. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.
13. demonstrate an attitude of responsibility toward the automotive service and manufacturing industry and the world of work.

Aviation Maintenance Technician (AC) Certificate/Two Years

In preparing to become an aircraft and powerplant maintenance technician, the student learns the theories of, and gains practical skills in such areas as aircraft powerplant maintenance and troubleshooting. This program is approved by the Federal Aviation Administration, and as a graduate the student will be qualified to take the examinations for the Airframe and Powerplant Maintenance Certificate. See page 5 for special admission requirements for this program.

Types of Jobs: Maintenance technician for airlines, fixed base operators, and manufacturer's services.

FIRST SEMESTER

			Credits
APC	711	General Airframe & Powerplant	13
APC	712	Powerplant I	3
EDT	104	Aircraft Drawings	2
MTH	715	General Aviation Mathematics	3
			21

SECOND SEMESTER

			Credits
APC	721	Powerplant II	17
			17

THIRD SEMESTER

			Credits
APC	831	Powerplant III	9
APC	832	Airframe I	10
			19

FOURTH SEMESTER

			Credits
APC	841	Airframe II	20
			20

PROGRAM OBJECTIVES

The objective of the Aviation Maintenance Technician program is to prepare the student to pass the written, oral, and practical Federal Aviation Administration Examination, and to master skills necessary for employment in aviation maintenance.

A graduate of the Aviation Maintenance Technician program should be able to:

1. prepare FAA Maintenance forms accurately.
2. locate specific information in various aviation publications.
3. read and comprehend varied aircraft and powerplant service publications.
4. recognize need for accuracy and thoroughness in work.
5. demonstrate professional inspection and operational skills.
6. observe and practice safety habits at all times.
7. demonstrate correct use of basic hand tools, special tools, and required testing equipment.
8. use mathematics and theory in aviation maintenance activities.
9. list, define, and correctly use aviation maintenance terminology.
10. maintain high professional standards in work as established by instruction and the FAA.

Aviation Campus — Located at the Williamsport/Lycoming County Airport in Montoursville.

Broadcasting (BR)
Associate Degree/Two Years

Announcers and newswriters from nearby radio stations will assist the faculty in teaching modern broadcasting techniques using the College's 10-watt FM educational radio station. Background courses in management, government, economics, sociology, and psychology are included in the program.

Types of Jobs: Radio or television announcer, disc jockey, news commentator, public relations assistant, advertising copywriter.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
BRC	110	Introduction to Broadcasting	3
BRC	115	Technical Commercial Radio Operation	3
ENL	111	English Composition I	3
ENL	202	Fundamentals of Speech	3
SEC	111	Typewriting I	3
			15

SECOND SEMESTER

			Credits
BRC	125	Introduction to Radio Station Operation	3
BRC	233	Announcing Techniques	3
ENL	121	English Composition II	3
GOV	241	State and Local Government	3
SOC	111	Introduction to Sociology	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
BRC	123	News Writing for Radio	3
BRC	235	Radio Station Operation and Management	3
ECO	201	Principles of Economics	
		or	3
MGT	110	Principles of Business	
GOV	231	American Government - National	3
PED		Physical Education	1
		General Elective*	3/4
			16/17

FOURTH SEMESTER

			Credits
BRC	241	Survey of Radio Industry	2
BRC	242	Community Aspects of Broadcasting	3
ADV	101	Principles of Advertising	3
MGT	247	Small Business Management	3
PSY	111	General Psychology	
		or	3
MGT	235	Business Psychology	
		General Elective*	3
			17

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Broadcasting program is to prepare the student for a position in the radio broadcasting industry in a small or middle size operation. Students are also prepared to transfer to a baccalaureate degree program.

The graduate of the Broadcasting program should be able to:

1. demonstrate proficiency in selecting and announcing music from records and be familiar with several kinds of recorded musical forms.
2. demonstrate proficiency in the use of the tools of the broadcast industry, such as control room boards, microphones, and various types of tapes.
3. secure, write, and edit news for broadcasting and apply a general knowledge of physical and social sciences.
4. demonstrate effective performance in the various types of specialized radio announcing including news, interviews, sports, and talk shows.
5. describe and estimate the impact of the governmental control exercised by the Federal Communications Commission and the Federal Trade Commission.
6. demonstrate the ability to acquire and evaluate appropriate demographic information and design a specific broadcast facility based on such information.
7. evaluate the nature of advertising in the United States as it relates to the economy of the nation and create usable broadcast advertising.
8. recognize the business basis of the individual broadcasting station, including operation of sales and management activities.
9. carry out both employee and leadership human relations skills in a commercial business setting.
10. explain the philosophical concepts of American broadcasting in contrast to those of other countries and relate this to the American form of government.
11. describe and analyze the history of the broadcast industry as it relates to current forms of radio broadcasting.
12. appraise the community responsibility of broadcast facilities and assess the need for public service based on FCC regulations.
13. utilize theory and operations skills required by FCC of all broadcasting equipment operators.
14. demonstrate mastery of the fundamentals of oral and written communications.
15. evidence facility in thinking and speaking extemporaneously.
16. demonstrate proficiency in job seeking including preparation of effective letters of application, resumes, and audition tapes.
17. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Business Management (BM)
Associate Degree/Two Years

This program provides basic business knowledge and covers management theory and application procedures, business concepts, and the effect of business on the economy.

Types of Jobs: Junior-executive or management trainee positions in manufacturing, retailing, finance, banking, insurance, marketing, and government.

FIRST SEMESTER

			Credits
MGT	110	Principles of Business*	3
MGT	111	Business Mathematics	3
ACC	112	Accounting I*	3
SEC	111	Typewriting I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
MGT	230	Business Communications	3
ACC	122	Accounting II	3
CSC	118	Fundamentals of Computer Science*	3
ECO	201	Principles of Economics*	3
PED		Physical Education	1
		Social Science Elective	3
			16

THIRD SEMESTER

			Credits
MGT	231	Business Law I*	3
ACC	230	Managerial Accounting	3
ENL	202	Fundamentals of Speech	3
		Computer Science Elective*	3
		Elective*	3
			15

FOURTH SEMESTER

			Credits
MGT	125	Finance*	3
MGT	241	Business Law II	3
MGT	248	Supervision and Human Relations	3
MKT	240	Marketing	3
		Elective*	3
			15

*Equivalent AIB (American Institute of Banking) courses may be substituted with Division approval.

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of this program is to prepare the student for employment in the business management field. Alternatives may be to pursue advanced study or to add to the competencies of those currently employed in the field.

The graduate should be able to:

1. demonstrate specialized knowledge and skills applicable to immediate employment in the business management field.
2. demonstrate potential for managerial growth through use of tools of modern decision making.
3. illustrate an awareness of profit motives.
4. apply generally accepted accounting principles.
5. identify, compare, and utilize financial statements and management information systems.
6. evaluate consumer needs, and relate them to current business procedures.
7. relate in a positive manner to supervisors, peers, and subordinates on an interpersonal level.
8. apply knowledge of electronic data processing systems in making managerial decisions.
9. demonstrate skill in effective oral and written communication.
10. identify the legal aspects affecting business.
11. identify the need for physical fitness and positive leisure activities.

Carpentry and Building Construction Technology (CB)
Associate Degree/Two Years

This program covers the theoretical and practical aspects of light building construction. It also explores the principles and techniques of light-frame carpentry and masonry with emphasis on design, construction, cost estimation, and management.

Types of Jobs: Positions leading to supervisor, building technician, or construction superintendent.
Recommended High School Subjects: Two years of algebra, one year of science. One year of geometry is desirable.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
BCT	111	Woodworking for Carpenters	4
BCT	112	Construction Carpentry	4
ENL	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
			15

SECOND SEMESTER

			Credits
BCT	121	Estimating and Blueprints	2
BCT	122	Block Construction	6
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
BCT	231	Roof-framing Theory	3
BCT	232	Brick Construction	5
ELT	110	Electricity for the Trades	3
ECO	201	Principles of Economics	3
PHS	100	Physics-Mechanics	4
			18

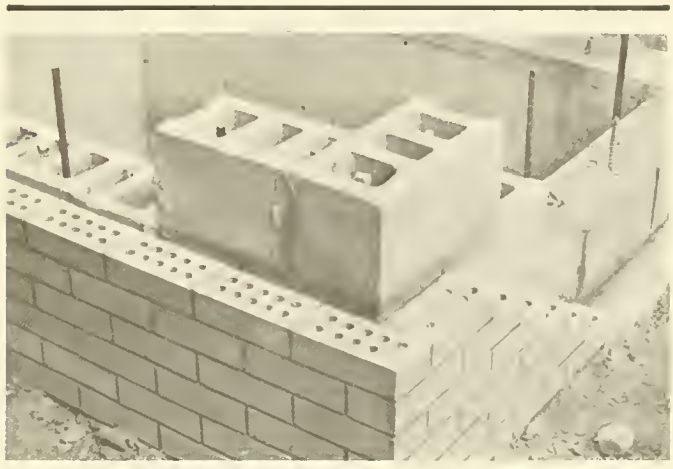
FOURTH SEMESTER

			Credits
BCT	241	Advanced Carpentry	4
BCT	242	Building Construction Technology	6
BCT	243	Concrete Construction	3
		Elective-General*	3/4
			16/17

Co-op Options:
Alternating
Parallel
Summer

PROGRAM OBJECTIVES

The general objective is to prepare the student to obtain employment in the building construction industry, and insure that he/she has an understanding of all basic manipulative skills as well as related information needed to solve trade problems. The student will be able to evaluate his or her interest within the broad field of the construction industry. This program may also serve as a basis for continued higher education leading to a Bachelor's Degree in fields such as Building Construction and/or Vocational Education. In addition students will be introduced to and practice basic management skills as applied to the building technology field.



A graduate of the Building Construction Technology program should be able to:

1. write clear, concise, legible, and accurate technical reports and be skilled in oral communication as related to the construction industry.
2. demonstrate the basic manipulative skills of the trade which are necessary in laying out work, planning, erecting, and framing.
3. interpret and prepare plans, drawings, specifications, lines, symbols, and abbreviations on working drawings or blueprints.
4. demonstrate his/her ability to lay out and erect a platform or western frame structure.
5. analyze specifications and contract drawings and make accurate quantity take-offs and labor estimations to develop an estimated construction cost for a building project.
6. demonstrate basic knowledge and skill in masonry and concrete construction.
7. describe various types of materials and methods available to the construction trade.
8. describe business organization, financing, labor relations, selling, pricing, customer service, management, and other business principles.
9. describe the complexity of the building construction industry, the interrelationships of the various trades, and methods of communication and coordination among all trades and professions within the industry.
10. solve building construction problems using mathematical concepts learned in algebra and trigonometry.
11. apply scientific procedures learned in physics as they relate to problem solving techniques within the building construction area.
12. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Civil Engineering Technology (CT)
Associate Degree/Two Years

This program prepares the student to assist civil engineers in the planning, designing and construction of highways, railroads, bridges, airfields, buildings, and dams. Experience with modern equipment prepares the student to meet the challenge of recent technical developments.

Types of Jobs: Engineering technician, surveyor, inspector, drafting, cartographer, design technician, and photogrammetrist.
Recommended High School Subjects: Two years of algebra, one year of science.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration. (In area of Communications, Humanities, Social Science, Mathematics, Science, Allied Health, Business or Computer Science.)

FIRST SEMESTER

			Credits
CET	111	Materials of Construction	2
CET	112	Engineering Drawing	3
CET	113	Introductory Surveying	2
ENL	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
		Elective-General*	3/4
			17/18

SECOND SEMESTER

			Credits
CET	121	Plane Surveying	4
CET	122	Topographic Drawing and Cartography	3
CET	244	Photogrammetry	3
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
PED		Physical Education	1
			17

THIRD SEMESTER

			Credits
CET	231	Route Surveying	4
CET	232	Origin, Distribution & Behavior of Soils	3
CET	233	Statics	3
CET	234	Highway Engineering Technology	3
PHS	100	Physics-Mechanics	4
			17

FOURTH SEMESTER

			Credits
CET	241	Advanced Surveying	3
CET	242	Fluid Mechanics	3
CET	243	Strength of Materials	3
ECO	201	Principles of Economics	3
CSC	100	FORTRAN IV Programming	3
		Elective-General*	
		or	3
		Approved Co-op	
			18

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Civil Engineering Technology program is to enable the student to evaluate his/her interest and abilities within the broad field of civil engineering. This will enable the student to make a choice regarding future employment or specialized study in a specific field of civil engineering.

A graduate of the Civil Engineering Technology program should be able to:

1. differentiate between various types of surveys and select and use the proper instruments and methods to satisfy the requirements for each survey. These will include boundary, control, construction, topographic and geodetic surveys.
2. construct a cartographic and topographic map using recognized mapping procedures.
3. apply the functions and principles of aerial photographs in making engineering measurements and topographic maps.
4. apply basic criteria used to design, locate, and estimate earthwork quantities for highway construction.
5. determine and use the engineering properties of the basic construction materials such as steel, concrete, wood, and soil.
6. apply the functions of basic structural components and be able to design these components to resist applied loads.
7. demonstrate working knowledge of mechanics of compressible and incompressible fluid flow and their applications to piping systems, pumps, open channels, and reservoirs.
8. communicate effectively through the skills learned in English Composition and Engineering Drawing.
9. utilize social science concepts to deepen an understanding of self and to relate more effectively to others.
10. use concepts developed in algebra and trigonometry to solve problems related to civil engineering.
11. apply scientific procedures learned in physics to the solution of engineering problems.
12. recognize the need for physical fitness and lifelong recreational activities through physical education.
13. prepare computer programs in order to solve engineering problems.

Clerical Studies (BT)
Certificate/One Year
(Starts in January of each year)

This program provides the fundamentals of typewriting, machine calculation, and clerical procedures. It also covers indexing principles, filing, and basic office techniques.

Types of Jobs: Clerk-typist, business machine operator, filing, general clerical, payroll work, Dictaphone transcription.

FIRST SEMESTER

			Credits
SEC	111	Typewriting I	3
CLS	717	Clerical Procedures	7
ENL	711	Communications	3
		Elective	3
			16

SECOND SEMESTER

			Credits
MGT	111	Business Mathematics	3
MGT	230	Business Communications	3
CLS	728	Clerical Workshop	8
SEC	121	Typewriting II	3
			17

PROGRAM OBJECTIVES

The general objective of the Clerical Studies program is to enable students to enter the business world in a clerical capacity with competency and efficiency.

The graduate should be able to:

1. demonstrate skill in performing routine office tasks.
2. demonstrate skill in effective written and oral communications.
3. employ competencies in basic clerical office procedures.
4. illustrate basic knowledge of modern office equipment and office supplies.
5. apply working knowledge of reprographics, word processing, and computational skills.
6. assess and influence behavior among supervisors, peers, and subordinates.
7. apply general knowledge of the social sciences, and possess an awareness of their effect on our society.

Computer Operator (CO)
Certificate/One Year

This program trains the student in all aspects of data processing operations and the effective utilization of the equipment. The student is prepared for entry into industry as a qualified computer operator. This program provides an option for those students who have an interest in and aptitude for a data processing career, but do not desire to be programmers.

Types of Jobs: Computer operator, peripheral data processing equipment operator, operations manager, data and job control managers and technical sales representatives.

FIRST SEMESTER

			Credits
COP	713	Computer Operations I	6
CSC	118	Fundamentals of Computer Science	3
ACC	112	Accounting I	3
SEC	509	Typewriting	1
ENL	111	English Composition I	3
			16

SECOND SEMESTER

			Credits
COP	723	Computer Operations II	4
COP	724	Computer Operations Internship	2
CSC	120	Business Computer Applications	3
ENL	201	Technical Writing	3
		Computer Science Elective	3/4
			15/16

PROGRAM OBJECTIVES

The general objective of the Computer Operator program is to prepare the student to obtain employment in the field of computer operations in various positions such as computer operator, peripheral equipment operator, data entry clerk, or data controller.

The graduate should be able to:

1. operate computer systems.
2. demonstrate competent communication skills in technical writing.
3. relate in a positive manner to supervisors, peers, and subordinates on an interpersonal level.
4. utilize system utility programs.
5. interpret and manage data controls from data entry to completed output.
6. interpret and utilize written documentation for program execution.
7. apply job control language to execute computer jobs.
8. operate peripheral and related data processing equipment.
9. maintain operation logs and libraries.
10. perform routine housekeeping tasks in the computer area and general maintenance on the equipment.
11. apply generally accepted accounting principles.

Computer Science Technology (CS)
Associate Degree/Two Years

This program trains the student in various computing systems in electronic data processing. It provides a broad range of knowledge of programming techniques and experience in operation of computer systems and peripheral data processing equipment. The curriculum offers a secondary background in business accounting and management or math and science.

Types of Jobs: Computer programmer, junior systems analyst, sales representative, related technician.
Recommended High School Subjects: Two units of mathematics including algebra.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
CSC	118	Fundamentals of Computer Science***	3
CSC	119	RPG Programming I	3
ACC	112	Accounting I***	3
ENL	111	English Composition I	3
SEC	509	Typewriting	1
		Mathematics Requirement**	3/4
			16/17

SECOND SEMESTER

			Credits
CSC	127	Assembler Language Programming	4
CSC	128	COBOL Programming I	3
ENL	121	English Composition II	3
PED		Physical Education	1
		Mathematics Requirement**	3/4
		Elective-Math/Science/Business***	3/4
			17/19

THIRD SEMESTER

			Credits
CSC	234	FORTRAN & Linear Programming	3
CSC	245	Computer Software Systems	3
CSC	238	COBOL Programming II	3
MTH	201	Elementary Statistics I	3
PED		Physical Education	1
		Elective-Math/Science/Business***	3/4
			16/17

FOURTH SEMESTER

			Credits
CSC	241	Systems Analysis and Design	4
CSC	249	RPG Programming II	3
		Computer Science Elective***	3
		Elective-Math/Science/Business***	3/4
		Elective-General***	3/4
			16/18

**Students are encouraged to meet the 6 credit minimum in mathematics at the highest possible level. Suggested alternatives:
a. MTH 101-102 sequence (Intro. to Math) - minimum allowable math sequence.
b. MTH 103-104 sequence (College Algebra and College Trigonometry) - recommended via placement test and for students wanting strong math background.
c. MTH 238-248 sequence (Calculus I and II) - recommended via placement test and for students with strong high school background desiring highest level of mathematical preparation.

***Equivalent AIB (American Institute of Banking) courses may be substituted with Division approval.

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Computer Science program is to prepare the student to obtain employment as a computer programmer or a junior systems analyst. Alternatives may be to pursue advanced study or to add to the competencies of those currently employed in the field.

The graduate should be able to:

1. write effective, efficient computer programs in RPG, COBOL, FORTRAN and Assembler languages.
2. demonstrate ability to reason logically, to analyze, to synthesize, and to evaluate technical information and to apply these processes to pertinent problems.
3. demonstrate competent communication skills in oral and written form.
4. relate in a positive manner to supervisors, peers, and subordinates on an interpersonal level.
5. prepare written documentation of computer programs.
6. assist in the design of business systems.
7. utilize system software packages to execute computer jobs.
8. identify the concepts and organization of the various operating systems.
9. design and incorporate data controls from data entry to completed output.
10. use interactive programming techniques.
11. employ the basic operations of a computer system and related data processing equipment.
12. apply generally accepted accounting and mathematical principles.
13. apply general knowledge of the social sciences, and possess an awareness of their effect on our society.
14. identify the need for physical fitness and positive leisure activities.

Construction Carpentry (CC)
Certificate/Two Years

Students in this program receive laboratory instruction on the proper use of hand tools, portable power tools and portable power equipment, and become licensed in the use of power activated tools. The necessary classroom theory on methods, procedures, and materials is given. The program includes working on the construction of a residential building under supervision of qualified instructors.

Types of Jobs: Apprentice carpenters or masons, with advancement possibilities, also employment in plants or factories where building units, components, or building materials are made or sold.

FIRST SEMESTER

			Credits
CNC	711	Surveying, Layout & Blueprint Reading (8 weeks)	2
CNC	712	Concrete and Block (8 weeks)	4
CNC	713	Brick and Stone (8 weeks)	6
ENL	711	Communications	3
MTH	710	Technical Mathematics I	3
			18

SECOND SEMESTER

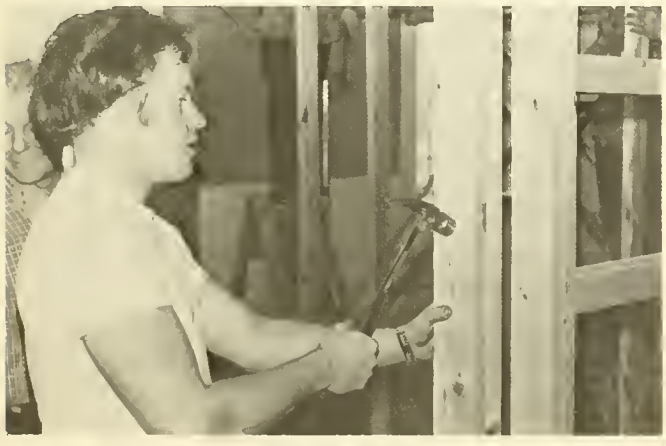
			Credits
CNC	721	Framing and Sheathing (8 weeks)	6
CNC	722	Exterior Finish (8 weeks)	6
ARC	102	Basic Architectural Drafting	3
			15

THIRD SEMESTER

			Credits
CNC	831	Interior Finish (8 weeks)	6
CNC	832	Interior Trim (8 weeks)	6
CNC	833	Blueprints and Specifications	3
		Optional Elective	0/3
			15/18

FOURTH SEMESTER

			Credits
CNC	841	Specialty & Related Trades (8 weeks)	4
CNC	842	Practical Construction Experience (8 weeks)	4
CNC	843	Building Trades Estimating (8 weeks)	3
CNC	844	Personal & Job Orientation (8 weeks)	3
		Optional Elective	0/3
			14/17



PROGRAM OBJECTIVES

The general objective of this program is to prepare the graduating student with basic skills and knowledge for entry into the building construction industry.

A graduate of the Construction Carpentry program should be able to:

1. demonstrate basic knowledge and skills in the use of the transit and other measuring devices in site preparation and building layout.
2. demonstrate basic knowledge and skills in masonry and concrete construction as applied to building construction industry.
3. demonstrate basic knowledge and skills in layout and construction of building framework and sheathing.
4. demonstrate basic knowledge and skills in the installation of exterior siding, roofing, trim and millwork, and building insulation.
5. demonstrate basic knowledge and skills in the installation of interior finish, floors, walls and ceilings.
6. demonstrate basic knowledge and skills in the installation of doors and interior trim; build and/or install cabinet work and finish stairways.
7. demonstrate basic knowledge of trades related to the building industry, such as ceramic tile and resilient floor installations.
8. look for, secure, and keep a job and have insight into possible self-employment, the importance of customer service and personal goals.
9. read and interpret blueprints and specifications, prepare basic architectural drawings, and estimate building costs.
10. use the basic skills of oral and written communication desirable for understanding instructions and presenting ideas and instructions in a clear and logical manner.
11. use basic mathematical skills necessary for job performance and for the development of visualization skills and logical thought processes.
12. practice safe work habits and demonstrate attitudes of responsibility and craftsmanship.

Dental Hygiene (DH)
Associate Degree/Two Years

The Dental Hygiene Program has been developed to prepare young men and women for licensure so that they may pursue a variety of career opportunities within the dental hygiene profession. Clinical experience and field trips are integrated with classroom instruction to provide a diversified background. See page 5 for special admission requirements for this program.

Types of Jobs: Hygienists are employed by dentists in private dental practices, research, government health agencies, school systems, hospital and industrial clinics, military services and in dental hygiene education programs.
Required High School Courses: Because of the strong emphasis on science in the dental hygiene program, applicants must have successfully completed one year of high school biology and two years of high school algebra. It is also recommended that the applicant have an additional laboratory science (i.e., physics, chemistry).

FIRST SEMESTER

			Credits
DHG	100	Introduction to Dental Hygiene	4
DHG	115	Oral Anatomy & Histology	3
BIO	115	Human Anatomy & Physiology I	4
CHM	107	General Organic Chemistry	3
ENL	111	English Composition I	3
PED		Physical Education	1
			18

SECOND SEMESTER

			Credits
DHG	120	Oral Radiology	2
DHG	121	Dental Materials	2
DHG	123	Periodontics I	1
DHG	124	Clinical Dental Hygiene I	4
BIO	125	Human Anatomy & Physiology II	4
BIO	201	Microbiology	4
			17

THIRD SEMESTER

			Credits
DHG	230	Clinical Dental Hygiene II	5
DHG	236	Periodontics II	1
DHG	237	Pharmacology & Emergencies	3
DHG	239	General & Oral Pathology	2
DHG	243	Dental Specialties	3
FHD	112	Nutrition	3
			17

FOURTH SEMESTER

			Credits
DHG	241	Community Dental Health	2
DHG	242	Clinical Dental Hygiene III	4
DHG	244	Dental Practice Orientation	2
ENL	202	Fundamentals of Speech	3
PSY	111	General Psychology	3
PED		Physical Education	1
		Social Science Elective	3
			18

PROGRAM OBJECTIVES

The general program objective of the Dental Hygiene program is to prepare students to successfully pass the National Dental Hygiene Board examinations, the Northeast Regional Boards, the required examinations for selected states, and to qualify for employment as dental hygienists.

The Dental Hygiene graduate should be able to:

1. apply knowledge of the design, techniques, and sharpening methods of instruments utilized in dental hygiene procedures.
2. identify anatomical landmarks of the head and neck and deviations from normal.
3. use correct anatomical terminology in classifying all permanent and primary teeth on the basis of morphological and histological characteristics and occlusion.
4. incorporate knowledge of microbiology in aseptic techniques while performing a complete and thorough prophylaxis.
5. demonstrate appropriate preventive oral health procedures.
6. develop, process, and evaluate all types of intra and extra oral radiographs.
7. apply interpersonal, motivational, and communication knowledge and skills from English, speech, psychology, and social sciences to work with patients, other members of the dental health team, and community groups.
8. operate all dental equipment safely, effectively, and efficiently.
9. demonstrate a commitment to professional organizations through attendance at meetings, seminars, and continuing education programs.
10. apply knowledge of dental hygiene skills in a variety of settings (e.g., private practice, specialty practice, public institutions, industry, public health, etc.).
11. administer first aid and emergency treatment.
12. explain properties, dosage, actions, and reactions of drugs used in dentistry.
13. utilize the concepts of anatomy, physiology, and nutrition in the relationship of dental health to total health.
14. record with accuracy all vital signs, health histories, patient records and forms with consideration of legal guidelines.
15. develop sound ethical, philosophical, and moral professional characteristics.
16. apply concepts of chemistry in analyzing dental materials and in relationship to body processes.
17. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Diesel Mechanics (DM)
Certificate/Two Years

This program presents theories and develops manipulative skills in the care of diesel-powered highway vehicles, industrial and marine engines, and commercial powerplants. Some specialization is available in fuel injection service, engine repair and rebuilding, power train, brakes, steering, and chassis work.

Types of Jobs: Heavy duty truck mechanic for truck dealership, independent garage, truck fleet, or contractor. Industrial engine mechanic in mining, quarrying, construction equipment, or marine waterways fleet. Also field service representative for diesel engine manufacturer or distributor.

FIRST SEMESTER

		Credits
DMC 713	Introduction to Diesel Mechanics (8 weeks)	7
DMC 714	Internal Combustion Engines (8 weeks)	7
MTH 710	Technical Mathematics I	3
		17

SECOND SEMESTER

		Credits
DMC 723	Four-Cycle Diesel Engines (8 weeks)	7
DMC 724	Two-Cycle Diesel Engines (8 weeks)	7
ENL 711	Communications	3
		17

THIRD SEMESTER

		Credits
DMC 833	Fuel Injection Systems I (8 weeks)	7
DMC 834	Fuel Injection Systems II (8 weeks)	7
	Optional Elective	0/3
		14/17

FOURTH SEMESTER

		Credits
DMC 843	Truck Tractor Power Train (8 weeks)	7
DMC 844	Truck Tractor Chassis (8 weeks)	7
	Optional Elective	0/3
		14/17

Co-op Options:
Alternating
Parallel
Summer

PROGRAM OBJECTIVES

The goal of this program is to prepare the student for a successful career as a diesel mechanic in transportation, construction, marine, and related fields. The program also provides the academic and practical educational experiences which enable students to pass the Pennsylvania Vehicle Safety Inspection Certification as a vehicle safety inspection mechanic.

A graduate of Diesel Mechanics should be able to:

1. diagnose and repair common malfunctions of systems and components on popular makes of diesel engines.
2. demonstrate correct service of:
   a. diesel engines
   b. truck transmission and drive trains
   c. fuel systems, and other engine accessories
3. perform state inspections.
4. diagnose equipment failure, isolate faulty systems or components, and make necessary repairs.
5. interpret wiring diagrams, test and make repairs to starting, charging, lighting, and accessory systems on vehicles.
6. use elementary math operations (addition, subtraction, multiplication, division) including decimals, fractions, and conversions, as they apply to diesel mechanics.
7. write clear, concise, and accurate abstracts and reports.
8. demonstrate safe work habits and describe their importance as they apply to industry and OSHA.
9. demonstrate an attitude of responsibility toward the diesel service and manufacturing industry and the world of work.

Dietetic Technician (DT)
Associate Degree/Two Years

The Dietetic Technician program is a study of food production, patient nutritional care and dietary administration as it relates to health care institutions. The students concentrate on the normal and therapeutic needs of humans, food production, planning and sanitation, as well as management skills and accounting. This program includes 450 hours of clinical experiences.

Types of Jobs: Middle managers in dietary departments of health care institutions. Responsibilities include supervision of production and tray service to patients. Assist dietitians in patient contact, nutritional status and care data, as well as employee supervision and training. May also be employed as school cafeteria directors or in commercial quantity food production.
Recommended High School Courses: One unit of high school biology or chemistry, and high school math.

FIRST SEMESTER

			Credits
FHD	111	Introductory Foods	3
FHD	112	Nutrition	3
FHD	113	Field Experience in Management Systems I (2nd 8 weeks)	1
FHD	114	Introduction to Food Service Administration and Medical Care Organization	2
FHD	115	Purchasing, Storage & Sanitation	3
BIO	110	Applied Human Physiology	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
FHD	121	Quantity Food Preparation	3
FHD	122	Diet Therapy with Dietetic Seminar	3
FHD	123	Field Experience in Management Systems II	3
FHD	125	Menu Planning and Cost Control	3
ENL	111	English Composition I	3
PSY	111	General Psychology	3
			18

SUMMER TERM

			Credits
FHD	250	Hospitality, Dietetic Work Experience (Management Systems III)	1

THIRD SEMESTER

			Credits
FHD	231	Field Experience in Management Systems IV	3
FHD	235	Personnel Management, Work Simplification	3
FHD	245	Equipment and Layouts	3
ACC	112	Accounting I	
		or	3
ACC	121	Elementary Accounting	
PSY		Elective - Psychology	3
PED		Physical Education	1
			16

FOURTH SEMESTER

			Credits
FHD	234	Health Care Delivery Systems	3
FHD	242	Field Experience in Management Systems V	3
FHD	246	Hospitality Merchandising	
		or	3
FHD	241	Beverage Management & Catering	
ENL	121	English Composition II	
		or	3
ENL	202	Fundamentals of Speech	
SOC	111	Introduction to Sociology	3
			15

Co-op:
Summer (required)

PROGRAM OBJECTIVES

The general objective of the Dietetic Technician program is to prepare students for employment in medical care institutions in diet planning, kitchen supervision, and patient education. The program is designed to satisfy regulatory agency requirements for Dietetic Technicians and also allows students to continue their education toward a baccalaureate degree.

The Dietetic Technician graduate should be able to:

1. demonstrate proper techniques of food preparation and food handling sanitation.
2. plan and carry out the management of work schedules, job descriptions, menu planning, purchasing, portion control, and patient tray and cafeteria service.
3. describe equipment available on the market, and plan arrangement, operation, and maintenance for efficiency and safety.
4. demonstrate creative and thorough thinking in personnel evaluations and in solving management problems.
5. display knowledge and practice of adequate professional appearance, and appropriate attitude and standards.
6. describe the physiological effects of food in the human body.
7. show signs of developing a sense of worth and responsibility, not only as a dietetic technician, but in the community.
8. demonstrate ability to communicate clearly, both orally and in writing, to fellow employees and patients.
9. demonstrate understanding of financial and budgetary controls in health care institutions.
10. assist with dietary clerical records.
11. demonstrate knowledge of the responsibilities of a dietitian and identify areas in which he/she may be of assistance, and areas in which he/she should ask for consultation.
12. apply knowledge of physical activities and sports for the maintenance of good health.

Electrical Construction (EW)
Certificate/Two Years

This program stresses the manual skills needed to install and maintain wiring and electrical equipment, using blueprints, in buildings. Required courses in mathematics, science, and communications enhance the student's vocational opportunities.

Types of Jobs: Electrical construction union apprentice, industrial maintenance, self-employment in residential and commercial wiring and in electrical shops, electrical tester or inspector, power company employee.

FIRST SEMESTER

			Credits
ELC	711	Direct Current Fundamentals	6
ELC	712	Basic Wiring Lab	3
ELC	713	Motor Rewinding	3
ENL	711	Communications	3
MTH	710	Technical Mathematics I	3
			18

SECOND SEMESTER

			Credits
ELC	721	Basic Motor Control	4
ELC	722	Alternating Current Fundamentals	6
ELC	723	Residential Blueprint and Code	4
MTH	500	Technical Mathematics II	3
			17

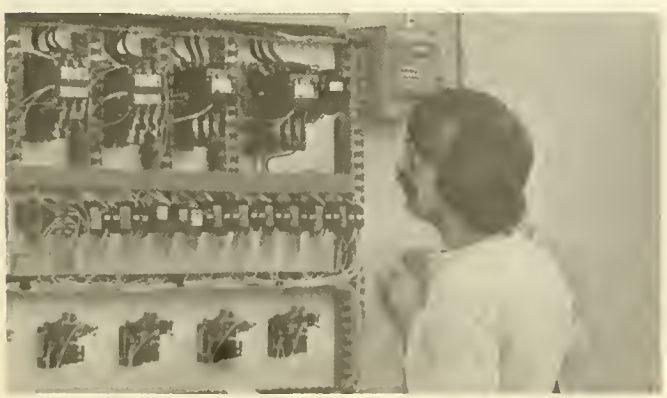
THIRD SEMESTER

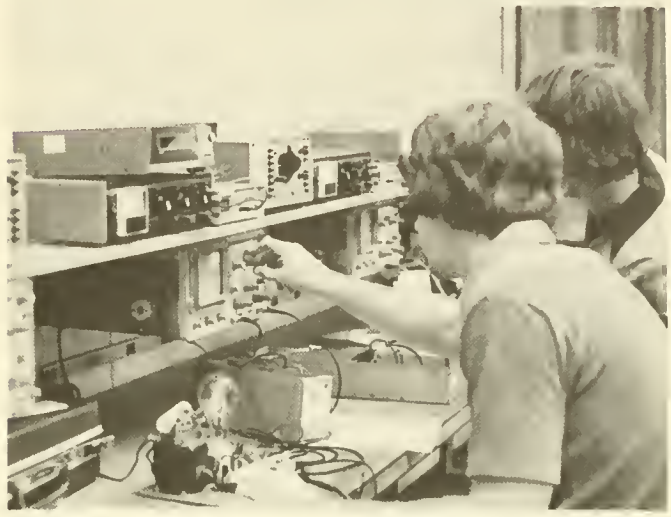
			Credits
ELC	832	Advanced Motor Control	3
ELC	833	Basic Electrical Construction Lab	3
ELC	834	Basic Electronics for Industry	6
ELT	113	Accident Prevention	2
EDT	102	Engineering Drafting	2
		Optional Elective	0/3
			16/19

FOURTH SEMESTER

			Credits
ELC	843	Industrial Motor Control	4
ELC	844	Commercial & Industrial Blueprint Reading	4
ELC	845	Advanced Electrical Construction	3
ELC	846	Electrical Machinery, Analysis and Repair	4
PHS	500	Physics Survey	3
			18

Co-op Options:
Parallel
Summer





PROGRAM OBJECTIVES

This program will prepare the graduate for employment in the field of residential, commercial, or industrial electrical construction and maintenance.

A graduate of the Electrical Construction program should be able to:

1. demonstrate the ability to function in a variety of environments, using the accepted safety procedures and work quality standards of the trade.
2. demonstrate familiarity with the interdisciplinary skills of electrical theory, mathematics, and physics, and be able to utilize these skills as they relate to the construction and operation of electrical systems.
3. identify and demonstrate correct use and care of the tools and materials utilized in the trade, and be capable of correctly requisitioning them from a stockroom or supplier.
4. demonstrate basic knowledge of reading and developing blueprints, and be capable of using this information to perform actual installations which comply with the National Electrical Code.
5. interpret ideas and formulate plans through communication with others.
6. operate, maintain, and repair rotating electrical machines.
7. demonstrate working knowledge of electrical construction procedures in the areas of residential, commercial, and industrial installations.
8. demonstrate the use of troubleshooting equipment and standard testing procedures.
9. operate and maintain electrical control systems.
10. demonstrate knowledge of basic electronic control circuitry, devices, and schematic diagrams.

Electrical Technology (EL)
Associate Degree/Two Years

This program prepares the student to work as an electrical technologist with electronic equipment and electrical machinery. It stresses electrical basics, including theory, circuits, industrial electronics, electrical machinery, and electrical construction. Required courses in mathematics, science and communications enhance the student's vocational opportunities.

Types of Jobs: Electrical technology and laboratory work, industrial maintenance technician, troubleshooter for electrical equipment manufacturers.
Recommended High School Subjects Two years of algebra, one year of science.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
ELT	111	Direct Current Fundamentals	5
ELT	112	Basic Wiring Lab	3
ELT	113	Accident Prevention	2
ENL	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
			17

SECOND SEMESTER

			Credits
ELT	121	Residential Blueprint Reading/ National Electrical Code	4
ELT	122	Alternating Current Fundamentals	5
ELT	123	Basic Electrical Construction Lab	2
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
			17

THIRD SEMESTER

			Credits
ELT	233	Basic Electronics	6
ELT	234	Electrical Motor Control	4
PHS	100	Physics-Mechanics	4
PED		Physical Education	1
		Elective-General*	3/4
			18/19

FOURTH SEMESTER

			Credits
ELT	241	Electrical Systems Analysis	2
ELT	242	Electrical Construction Blueprint Reading	4
ELT	244	Advanced Electrical Theory	3
ECO	201	Principles of Economics	3
PHS	101	Physics-Heat and Light	4
			16

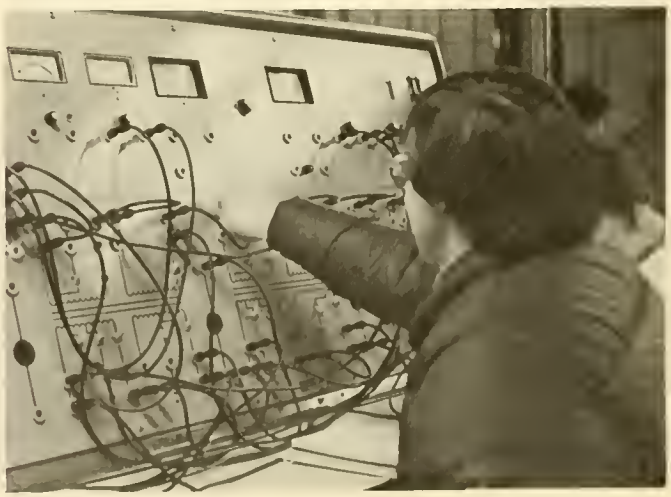
Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

This program will equip the student with the skills necessary to understand and apply the theory related to the field of electrical technology. The program structure encompasses both manual and theoretical aspects of the trade, and prepares students for the option of continuing their education toward a baccalaureate degree.

Upon completion of the program, the graduate should be able to:

1. demonstrate the ability to perform in a variety of electrical fields at a highly technical level, and apply accepted safety standards and the most recent developments in the electrical industry.
2. demonstrate the ability to use algebra, trigonometry, and physics in the design, development, and analysis of electrical and electronic circuits and systems.
3. compile parts lists and order forms which demonstrate knowledge of catalogs, coding, and numbering of components, devices, hardware, and materials.
4. display the ability to interpret and develop blueprints, schematic diagrams, and wiring diagrams, and transform them into functional systems that comply with the National Electrical Code and/or other specs.
5. generate complete and concise evaluations of electrical and electronic circuits and systems, and communicate that information verbally and/or in writing to others in or out of the field.
6. possess basic knowledge of construction procedures and electrical wiring techniques.
7. demonstrate knowledge of test equipment, instrumentation, and electrical/electronic theory, including complex numbers and network theorems used to analyze, troubleshoot, repair, and operate electrical/electronic circuits, systems, and equipment.
8. demonstrate knowledge of the theory and mechanics of rotating machinery, static and logic control circuitry, transformer banks, and instrumentation.
9. demonstrate decision-making processes and the need for interpersonal competition and individual growth.
10. describe United States business cycles, investments, and personnel policies and procedures and their relationship to the electrical industry.
11. recognize the need for physical fitness and lifelong recreational activities.



Electronics Technology (ET)
Associate Degree/Two Years

This program presents a broad theoretical and practical study of analog and digital electronic circuits and systems. Practical laboratory work with "industry standard" test equipment prepares the student to assume technician level positions in a wide range of electronics based industries.

Types of Jobs: Electronics engineering technician, electronic lab technician, instrumentation technician, field service technician, technical writer.
Recommended High School Subjects: Two years of algebra, one year of science.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
ENT	111	DC - AC Theory	5
ENT	115	Electronics Laboratory I	3
ENT	116	Introduction to Solid-State Devices	3
ENL	111	English Composition I	3
MTH	103	College Algebra	3
			17

SECOND SEMESTER

			Credits
ENT	125	Intermediate Solid State Devices and Circuits	5
ENT	126	Electronics Laboratory II	3
ENT	127	Introduction to Digital Electronics	3
ENL	121	English Composition II	
		or	3
ENL	201	Technical Writing	
MTH	104	College Trigonometry	3
			17

THIRD SEMESTER

			Credits
ENT	233	Communication Circuits and Systems	5
ENT	237	Electronics Laboratory III	3
ENT	238	Intermediate Digital Electronics	3
PED		Physical Education	1
		Elective - Math/Science	
		or	3/4
		Elective - Computer Science	
			15/16

FOURTH SEMESTER

			Credits
ENT	246	Introduction to Microprocessors	5
ENT	247	Electronics Laboratory IV	3
PED		Physical Education	1
		Elective - Electronics**	3
		Elective - General*	3/4
			15/16

**Electives - Electronics – Only one may be offered in any given year: ENT 248, Advanced Circuit Analysis, ENT 241, Calibration and Standardization.

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The overall goal of the Electronics Technology program is to prepare the student for employment as an electronic technician in a wide variety of electronic or related industries.

A graduate should be able to:

1. apply working knowledge of AC and DC circuits.
2. demonstrate basic knowledge of solid state devices.
3. describe the theory of various electronic communication systems.
4. analyze circuits containing various types of electronic devices.
5. demonstrate basic knowledge of digital electronics, logic circuits, and microprocessors.
6. solve mathematical problems relating to circuit analysis, digital electronics and other systems.
7. communicate verbally with others and write technical reports.
8. operate laboratory type cathode ray oscilloscopes.
9. operate parameter measuring equipment and signal generating equipment.
10. program microprocessor based systems and interface peripheral devices.
11. establish good working relationship with fellow workers and society.
12. apply knowledge of physical activities for the maintenance of good health.
13. describe contributions of our cultural heritage and illustrate the responsibilities of a good citizen.

Engineering Drafting Technology (ED)
Associate Degree/Two Years

This program prepares the student to make a variety of engineering drawings and calculations. It provides a broad knowledge of mechanical drafting and engineering procedures, and background skills in mathematics, science and communication.

Types of Jobs: Mechanical detail and layout drafting, engineering assistant or aide, checker, field department supervisor, or jobs in related areas such as planning, traffic safety, maintenance, and purchasing.
Recommended High School Subjects: Two years of algebra, one year of science.

FIRST SEMESTER

			Credits
EDT	106	Industrial Processes	2
EDT	111	Basic Drafting I (8 weeks)	4
EDT	112	Basic Drafting II (8 weeks)	4
ENL	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
			17

SECOND SEMESTER

			Credits
EDT	121	Power Transmission (8 weeks)	4
EDT	122	Mechanisms (8 weeks)	4
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
EDT	231	Detail & Assembly Drawings (8 weeks)	4
EDT	232	Applied Drafting Techniques (8 weeks)	4
PHS	100	Physics-Mechanics	4
		Elective	3/4
			15/16

FOURTH SEMESTER

			Credits
EDT	241	Advanced Detail I (8 weeks)	4
EDT	242	Advanced Detail II (8 weeks)	4
PHS	106	Introduction to Metallurgy	4
		Elective	3/4
			15/16

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the program is to prepare the student with the skills and competencies necessary for entry-level employment in the engineering drafting field in various capacities.

A graduate of this program should be able to:

1. apply the basic elements of drafting.
2. analyze and design simple power transmission installations.
3. make detail and assembly drawings.
4. detail casting drawings from sketches and models.
5. redesign castings into weldment drawings.
6. draw the various methods of piping.
7. detail assembly and sub-assembly drawings from layouts.
8. describe and apply the various methods of manufacturing as they relate to engineering drafting.
9. describe and apply principles of physics and metallurgy to engineering drafting.
10. utilize the appropriate mathematical skills and competencies to solve applied problems in engineering drafting.
11. communicate effectively in small group and interpersonal situations that may occur in industry.
12. function as an informed and participating citizen in a democratic society through exposure to the humanities and social sciences.
13. utilize and develop the fundamental skills provided through exposure to lifetime sports.

Floriculture (FL)
Ornamental Horticulture Technology (OH)
Associate Degree/Two Years

This program involves the business of growing, designing, and selling flowers, foliage, and related materials. It is directed toward employment with florists in planning, growing, designing, managing, and selling floral products and services.

Types of Jobs: Flower propagation; flower sales, both retail and wholesale; flower shop management; assisting in plant pathology; own business.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
OHT	114	Horticulture Soils	3
OHT	115	Woody Plants I	2
OHT	116	Herbaceous Plants	3
BIO	111	Basic Botany	3
ENL	111	English Composition I	3
MTH	500	Technical Mathematics II	3
			17

SECOND SEMESTER

			Credits
FLR	121	Greenhouse Crop Production I	3
FLR	122	Floral Design I	3
CHM	100	Fundamentals of Chemistry	
		or	4
CHM	105	General Organic Chemistry	
ENL	121	English Composition II	3
PED		Physical Education	1
			14

THIRD SEMESTER

			Credits
FLR	232	Greenhouse Crop Production II	3
FLR	233	Floral Design II	3
OHT	234	Plant Propagation	3
OHT	239	Plant Insects and Diseases	3
PED		Physical Education	1
		Elective-General*	3/4
			16/17

FOURTH SEMESTER

			Credits
FLR	243	Greenhouse Crop Production III	3
FLR	244	Flower Shop Operation	3
FLR	245	House & Conservatory Plants	3
OHT	246	Horticulture Mechanics	3
		Elective-General*	3/4
			15/16

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The goal of the Floriculture program is to prepare the student to obtain employment, or to be self-employed in the retail florist and greenhouse industry or related businesses.

A graduate of Floriculture should be able to:

1. interpret basic knowledge of botany, chemistry, and horticulture soils as they relate to plant growth and culture.
2. identify the communication skills necessary to organize thoughts and ideas and demonstrate the ability to communicate, orally and in writing, in a manner that can be easily understood.
3. solve mathematical problems relating to the use of soil amendments, fertilizers, and plant growth control chemicals, and demonstrate proper cost estimating, pricing, and record keeping.
4. identify common trees, shrubs, ground covers, and various annuals, biennials, and perennials by botanical and common names, and describe the outstanding characteristics of each; summarize landscape, garden center, and greenhouse use and cultural requirements of these species.
5. select the proper procedures, define the physiological basis, and describe practical applications of the reproduction of plants by asexual and sexual methods.
6. describe proper design and operation of greenhouse environmental systems, and appraise their advantages and disadvantages for commercial production.
7. summarize and assess cultural requirements for commercial production of greenhouse crops, and economically produce a crop from seed or cutting to harvest and sales.
8. prepare salable floral designs of fresh, dried, and artificial flowers using design guidelines and within time and price requirements of the retail florist industry.
9. outline the management requirements of a flower shop, including record keeping and employee/employer relations, and demonstrate proper construction, selling, and servicing of arrangements and accessories for special occasions.
10. identify and describe the effect of insects, disease, and physiological problems on plants, plan for proper control of these problems, and obtain the Pennsylvania Private Applicator's License.
11. demonstrate an understanding of the operation and repair of equipment and mechanical systems utilized in the floriculture industry.
12. demonstrate a responsible attitude in personal relationships with employers, fellow employees, and the world of work.
13. identify foliage plants commonly used indoors by botanical and common names, state distinguishing characteristics of each, and describe their use and culture in various indoor landscape areas.
14. demonstrate an appreciation of physical fitness and lifelong recreational activities.

Food and Hospitality Management (FH) Associate Degree/Two Years

This program includes academic classroom study as well as practical laboratory work in the areas of business and personnel management, food preparation and supervision, and related subjects. Guest speakers, field trips, and directed community field work experiences enlarge student opportunities for learning.

Types of Jobs: Food service supervisory positions in restaurants, clubs, hospitals, nursing homes, child care centers, schools, and colleges; front office or housekeeping manager in hotels and motels.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
FHD	111	Introductory Foods	3
FHD	112	Nutrition	3
FHD	115	Purchasing, Storage, and Sanitation	3
MGT	247	Small Business Management	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
FHD	121	Quantity Food Preparation	3
FHD	125	Menu Planning and Cost Control	3
ENL	121	English Composition II	
		or	3
ENL	201	Technical Writing	
PSY	111	General Psychology	3
PED		Physical Education	1
		General Elective*	3
			16

PRACTICUM—SUMMER TERM

			Credits
FHD	250	Hospitality, Dietetic Work Experience (Management Systems III)	1

THIRD SEMESTER

			Credits
FHD	235	Personnel Management, Work Simplification	3
FHD	236	Hospitality Management and Theory	2
FHD	245	Equipment and Layouts	3
ACC	121	Elementary Accounting	3
BIO	110	Human Physiology	
		or	3
		Science Elective	
			14

FOURTH SEMESTER

			Credits
FHD	126	Front Office Management and Housekeeping**	3
FHD	241	Beverage Management and Catering	3
FHD	246	Hospitality Merchandising	3
MGT	230	Business Communication	3
		General Elective*	3
			15

**Students may take FHD 122, Diet Therapy, or FHD 201, Advanced Quantity Foods, in place of FHD 126, Front Office Management and Housekeeping.

Co-op:
Summer (required)

PROGRAM OBJECTIVES

The general objective of the Food and Hospitality Management program is to prepare students for employment in food service management positions in restaurants, schools, institutions, and catering operations. Options within the program allow students to prepare for employment in front office and housekeeping positions in hotels and motels or to qualify to continue their education toward a baccalaureate degree.

Upon completion of the program, the student should be able to:

1. demonstrate proper techniques of food preparation and food handling sanitation.
2. plan and carry out the management of work schedules, job descriptions, menu planning, purchasing, portion control, and dining room and cafeteria service.
3. describe the equipment available on the market and plan arrangement, operation, and maintenance for efficiency and safety.
4. demonstrate creative, thorough thinking in solving management problems and in merchandising techniques.
5. display knowledge and practice of professional appearance, attitude, and standards.
6. describe the physiological effects of food in the human body.
7. show signs of developing a sense of worth and responsibility, not only in the food service business, but in the community.
8. communicate clearly, both orally and in writing.
9. demonstrate the ability to keep accurate food business records and have a proper perspective on the relation between financial profits and good business ethics.
10. plan and carry out catered events and apply knowledge of all types of beverages.
11. demonstrate working knowledge of establishing and operating a small business in the United States.
12. demonstrate working knowledge of front office practice and housekeeping procedures (students who select the lodging option).
13. apply knowledge of physical activities and sports for the maintenance of good health.

Forest Technology (FR)
Associate Degree/Two Years

This program includes basic forestry techniques, activities and field work. It provides sufficient general academic courses and specialized forestry courses to prepare the student to occupy a responsible position between the skilled forest worker and the professional forester.

Types of Jobs: In public agencies – Forest fire control; wildlife habitat improvement; maintenance of forest roads, structures, and recreation areas; timber estimation; timber marking; stand improvement.
In private employment – Pulpwood procurement; timber estimating; planning and construction of forest roads; supervision of logging operations; location and survey of forest property lines.
Recommended High School Subjects: Two years of algebra, one year of science.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
FOR	111	Dendrology	3
FOR	113	Forest Mensuration	3
FOR	115	Forest Botany	3
ENL	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
FOR	121	Photogrammetry & Forest Surveying I	3
FOR	124	Advanced Forest Mensuration	3
FOR	126	Forest Ecology/Wildlife Management	3
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
FOR	232	Forest Surveying II	3
FOR	233	Equipment and Machinery	3
FOR	234	Timber Harvesting	3
FOR	236	Silviculture	3
MGT	110	Principles of Business	3
			15

FOURTH SEMESTER

			Credits
FOR	242	Forest Products	3
FOR	247	Forest Land Management & Recreation	3
FOR	248	Forest Protection	3
ECO	201	Principles of Economics	3
		Elective-General*	3/4
			15/16

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Forest Technology program is to prepare the student to obtain employment as a forest technician in public and private sectors of forestry and related fields.

The graduate of the Forest Technology program should be able to:

1. write accurate technical reports using proper language structure and demonstrate skill in basic oral communication.
2. identify selected species of trees and shrubs by their scientific and common names, general uses, site associations and general distribution.
3. demonstrate the fundamentals of plane surveying, including the use and care of equipment, maps and map making, and the theory of measurements.
4. measure the volume of standing timber and volume of products removed from the forest.
5. prepare a forest land management plan for given property using the concepts of multiple use and sustained yield forest management.
6. demonstrate proficiency in understanding the silvicultural treatments used to regulate stand composition, regenerate stands, increase growth rates and improve timber quality.
7. demonstrate the basic theories, principles, and techniques employed in timber harvesting and demonstrate proficiency in the operation and maintenance of the tools and equipment used to harvest a forest crop.
8. analyze the interrelationships among humans, other organisms, and the forest environment.
9. describe the life history, food requirements, and distribution of the major game and non-game birds and mammals of Pennsylvania.
10. identify and describe the function of tree parts and related plants and describe their relationship to soil.
11. describe the processing operations, properties, and uses of various forest products and identify and describe the properties and structure of wood.
12. describe the characteristics and control of various forest pests, diseases, and fire problems.
13. utilize the appropriate mathematical skills and competencies to solve applied problems in the field of forestry.
14. develop fundamental skills in lifetime sports.
15. demonstrate an attitude of responsibility required for successful relationships with employers, fellow employees, and the world of work.

Graphic Arts (GA)
Associate Degree/Two Years

This program provides a firm understanding of highly diversified backshop operations along with management, marketing, and supervisory training. Practical laboratory work with modern graphic arts equipment gives a background in areas of composition, makeup, photo process, imposition and stripping, platemaking, presswork, and bindery.

Types of Jobs: Graphic arts executive training, in-plant supervisors, self-employed printer, marketing and technical sales service.
Recommended High School Subjects: Two years of algebra, one year of science.

FIRST SEMESTER

			Credits
GCO	511	Layout and Design	4
GCO	512	Typographic Composition	4
ENL	111	English Composition I	3
SEC	509	Typewriting	1
MTH		Math Elective*	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
GCO	521	Process Camera	4
GCO	522	Film Assembly & Imposition	4
ENL	121	English Composition II	
		or	3
ENL	201	Technical Writing	
MGT	247	Small Business Management	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
GCO	631	Platemaking, Substrates & Finishing	4
GCO	632	Press Operations	4
GCO	635	Printing Estimating Practices	3
CHM	299	Chemistry of Lithography	3
		Elective	3
			17

FOURTH SEMESTER

			Credits
GCO	641	Advanced Typographic Composition	3
GCO	642	Advanced Process Camera and Stripping	3
GCO	645	Printing Processes	3
CSC	118	Fundamentals of Computer Science	3
		Elective	3
			15

*MTH 101 Introduction to Mathematics, MTH 102 Introduction to Mathematics II, MTH 103 College Algebra, MTH 104 College Trigonometry

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of this program is to provide a firm understanding of highly diversified backshop operations and to prepare the graduate for employment. Related courses and electives are included to increase opportunities for advancement and enable the graduate to qualify for continuing education toward a baccalaureate degree.

A graduate of the Graphic Arts program should be able to:

1. recognize the major printing processes, their respective products, and the relative merits of each process.
2. perform in the areas of layout and design, copy preparation and composition, continuous tone and reproduction photography, stripping, platemaking, presswork and finishing with a level of proficiency suitable for job entry as an advanced learner.
3. relate technical knowledge to the areas listed above in order to make rational decisions.
4. appraise his/her abilities and limitations in the various areas comprising graphic arts.
5. demonstrate the personal traits of promptness, willingness to work, and the ability to accept supervision.
6. demonstrate respect for equipment and use appropriate safety precautions when working around such equipment.
7. compare production departments and the contributions each makes to the total product.
8. identify the problems of owning and operating a business.
9. describe basic chemistry principles and apply them to graphic arts.
10. solve basic mathematical problems related to graphic arts.
11. write clear, concise, legible, and accurate technical reports using proper language structure.
12. demonstrate skill in basic oral communication and ability to speak logically using various types of oral communication techniques.
13. demonstrate knowledge of the rules and techniques of a life-time sport which will provide recreation and promote physical fitness.

Industrial Drafting (ID)
Certificate/Two Years

This program emphasizes drafting skills which will enable the student to produce drawings for modern industry. The student will learn the latest industrial processes to improve and enhance his/her drawings and insure efficiency.

Types of Jobs: Mechanical, sheet metal, piping, or electrical drafting; related jobs such as estimator or field erection supervisor.

FIRST SEMESTER

			Credits
IND	714	Basic Drafting (8 weeks)	5
IND	715	Machine Drafting (8 weeks)	5
ENL	711	Communications	3
MTH	710	Technical Mathematics I	3
			16

SECOND SEMESTER

			Credits
IND	724	Gears, Cams, Mechanisms (8 weeks)	5
IND	725	Sheet Metal and Piping (8 weeks)	5
EDT	106	Industrial Processes	2
MTH	500	Technical Mathematics II	3
			15

THIRD SEMESTER

			Credits
IND	834	Civil Drafting (8 weeks)	5
IND	835	Structural Drafting (8 weeks)	5
PHS	500	Physics Survey	3
		Elective	3
			16

FOURTH SEMESTER

			Credits
IND	844	Architectural Drafting (8 weeks)	5
IND	845	Electrical and Electronic Drafting (8 weeks)	5
		Elective	3
			13

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of this program is to prepare the student to obtain employment as a drafter in industry. Distinct and singular studies related to each field are stressed along with a broad spectrum of general and basic education courses to enable graduates to enter and progress in the drafting profession.

A graduate from this program should be able to:

1. delineate designs and details using drawing instruments.
2. draft detailed working drawings of machinery and mechanical devices.
3. indicate dimensions and tolerances, fasteners and joining requirements.
4. draft multiple-view assembly drawings as required for the manufacture and repair of mechanisms.

5. draw plans and details for structures using structural reinforcing steel, concrete, masonry, and other structural materials.
6. prepare plans and details of foundations, building frames, floor and roof framing and other structural elements.
7. draft electrical equipment, working drawings and wiring diagrams used by construction crews and repairpersons who install electrical equipment and wiring in power plants, communications centers, industrial establishments, stores, homes, and electrical distribution centers.
8. draft architectural and structural features of buildings and other structures.
9. calculate quality, quantity, strength, and total cost of materials, making sure that the structure meets building codes.
10. prepare complete, accurate scale drawings of sheet metal parts and equipment used in the construction and repair of material conveyance duct, HVAC equipment, stacks and breeching.
11. draw piping plans and elevations with ability to estimate and draw "take-offs" from setting plans of boilers and processing plants.
12. prepare drawings from civil engineer's field notes showing metes and bounds, cross-sections, and cuts and fills.
13. apply engineering data to the drawings using mathematical calculations and basic laws of physics.
14. write accurate technical reports using standard English.
15. demonstrate an attitude of responsibility toward the tasks involved in mechanical drafting and a cooperative spirit toward each person associated with this work.

Journalism (JO)
Associate Degree/Two Years

Practical courses in news and feature story writing, news photography, editing, copy writing, and community responsibility are taught. Background courses in government, economics, sociology, and psychology are included in the program.

Types of Jobs: Newspaper reporter, advertising copywriter, public relations assistant, news photographer, magazine research assistant.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
JOU	111	News Writing	3
JOU	113	Principles of News Photography	3
ENL	111	English Composition I	3
GOV	231	American Government - National	3
SEC	111	Typewriting I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
JOU	121	Reporting Public Affairs	3
JOU	122	Introductory Newspaper Production	2
ENL	202	Fundamentals of Speech	3
GOV	241	State and Local Government	3
SOC	111	Introduction to Sociology	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
JOU	231	Feature Writing	3
JOU	232	Copyreading and Editing	3
JOU	233	Newspaper Management and Production	2
ECO	201	Principles of Economics	3
		Elective-General*	3/4
			14/15

FOURTH SEMESTER

			Credits
JOU	241	Newspaper Organization and Community Responsibility	3
JOU	242	Internship	2
ADV	101	Principles of Advertising	3
ESC	100	Environmental Science	3
PSY	111	General Psychology	3
		Elective-General*	3/4
			17/18

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Journalism program is to prepare students for employment in the journalism field in the small or middle size operation.

Graduates of the Journalism program will be able to:

1. state their importance as individual citizens, in the broad sense, in a community as well as their unique importance as trained media persons with the possibility of influencing the lives of others in the community.
2. state the responsibilities of the media in America, as well as state their responsibilities as individuals with specialized media training to their community.
3. use modern mass media copy production systems, such as the video display terminals.
4. state ethical and legislative laws which govern the production of mass media and correlate personal responsibility to those laws.
5. state philosophical and practical standards and goals of various forms of mass media.
6. list interrelationships of mass media with various kinds of communities; i.e., geographical, company, etc.
7. interview, research, and correlate material necessary for writing feature and/or in-depth articles for publication.
8. produce public relations material including articles and basic photographic assignments.
9. state relationship of photographs with news, advertising, and public relations material as well as produce basic photographic assignments.
10. list differences in types of writing for various forms of mass media including newspapers, magazines, trade journals, house organs, etc.
11. delineate the roles of individuals on staffs of publications.
12. explain the relationship of publications and publication budgets as pertains to operation of a business.
13. differentiate between objective, non-objective, biased, persuasive, and other forms of writing for mass media.
14. coordinate and implement organization and production of club bulletins, house organs and similar small publications.
15. assist in production of advertising copy and layout for small publications or small advertising agency.
16. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Machine Tool Technology (TT)
Associate Degree/Two Years

This program prepares the student to work with the engineer and shop superintendent. Laboratory and shop work provide training in machine operation and theory, blueprint reading, and mechanical drawing. Routing of jobs and the sequence of operations, as well as related courses in mathematics, science and economics are included to increase the student's advancement opportunities.

Types of Jobs: Toolmaker; experimental, numerical controller; production technician; administrative assistant.
Recommended High School Subjects: Two years of algebra, one year of science.

FIRST SEMESTER

			Credits
MTT	511	Machining I (8 weeks)	5
MTT	512	Machining II (8 weeks)	5
ENL	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
			17

SECOND SEMESTER

			Credits
MTT	521	Automatic Machines (8 weeks)	5
MTT	522	Industrial Metrology (8 weeks)	5
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
			16

THIRD SEMESTER

			Credits
MTT	631	Tooling Technology I (8 weeks)	5
MTT	632	Tooling Technology II (8 weeks)	5
PHS	100	Physics-Mechanics	4
EDT	101	Mechanical Drawing	2
			16

FOURTH SEMESTER

			Credits
MTT	641	Abrasive Machining (8 weeks)	5
MTT	642	Heat Treatment and Cutter Grinding (8 weeks)	5
PHS	106	Introduction to Metallurgy	4
PED		Physical Education	1
			15

Co-op Options:
Alternating
Parallel
Summer

PROGRAM OBJECTIVES

The overall objective is to prepare students for employment positions in the machine tool industry.

A graduate of the Machine Tool Technology program should be able to:

1. demonstrate safe working habits and a safe working attitude toward machinery and the machining field.
2. read blueprints, interpret drawings, understand specifications, and establish tolerances.
3. apply mathematics as it relates to the machine tool trade (speeds, feeds, thread measurement, sinebar, etc.).
4. apply the principles of physics and metallurgy to the science of heat treatment operations including:
   a. hardening of steel
   b. carburizing
   c. case hardening
   d. tempering
   e. annealing
5. operate basic machine tools and demonstrate knowledge of their construction as related to the metal industry.
6. describe the construction and operation of production machinery, including turret lathes, screw machines, automatic tappers, etc.
7. demonstrate skills on numerical control machine, electrical discharge machine, electrical chemical grinder, digital readout, diemaking, jig grinding, jigs and fixtures.
8. operate abrasive cutting machinery and select and plan machining operations on this equipment.
9. practice quality control, inspection, gaging methods, production control as related to the design functions and production of manufacturing.
10. demonstrate basic oral communication skills, speak logically, and use various types of oral and written communication techniques to promote good business contact, to develop leadership, and to establish good employer-employee-customer relationships.
11. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Machinist General (MG) Certificate/Two Years

This program offers training on machine tools that are common to most shops and emphasizes skill with machines. Classroom analysis of various jobs and machine operations increases the student's capabilities as a machinist. General mathematics, science, and communications skills are included to help meet the demands of modern technical developments.

Types of Jobs: Machinist, machine repair mechanic, setup person for production line work, skilled toolroom mechanic.

FIRST SEMESTER

			Credits
MTT	511	Machining I (8 weeks)	5
MTT	512	Machining II (8 weeks)	5
MTH	710	Technical Math I	3
			13

SECOND SEMESTER

			Credits
MTT	521	Automatic Machines (8 weeks)	5
MTT	522	Industrial Metrology (8 weeks)	5
MTH	500	Technical Math II	3
		Elective	3
			16

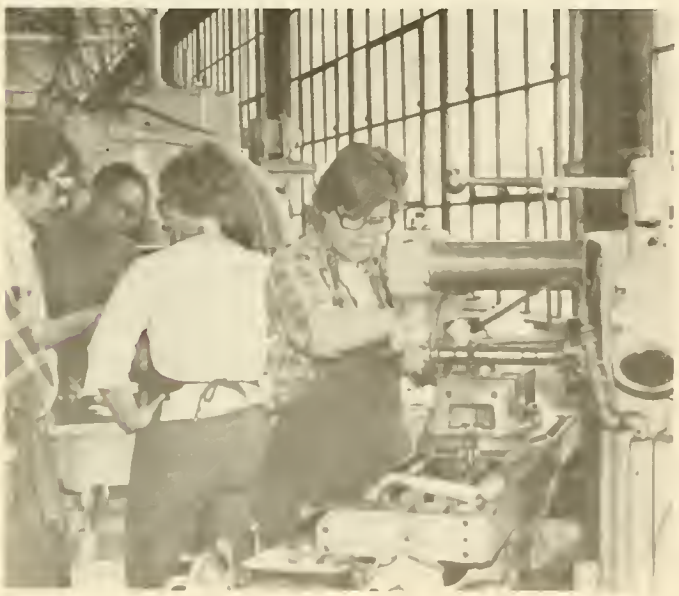
THIRD SEMESTER

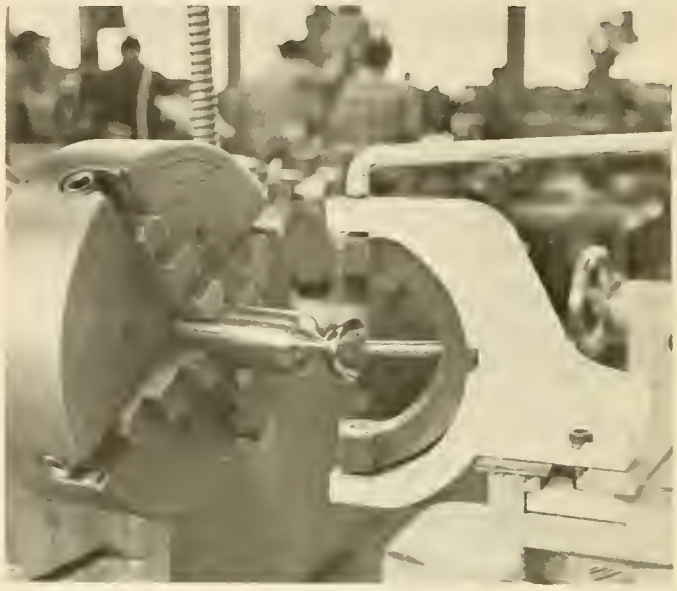
			Credits
MTT	631	Tooling Technology I (8 weeks)	5
MTT	632	Tooling Technology II (8 weeks)	5
PHS	500	Physics Survey	3
ENL	711	Communications	3
			16

FOURTH SEMESTER

			Credits
MTT	641	Abrasive Machining (8 weeks)	5
MTT	642	Heat Treatment and Cutter Grinding (8 weeks)	5
EDT	101	Mechanical Drawing	2
		Elective or Approved Co-op	3
			15

Co-op Options:
Alternating
Parallel
Summer





PROGRAM OBJECTIVES

The overall objective of this program is to prepare students for employment positions in the machining industry.

A graduate of the Machinist General program should be able to:

1. demonstrate safe working habits and a safety consciousness toward the operation of machine tools and equipment.
2. demonstrate working knowledge of blueprint reading and work from sketches of parts.
3. develop and use mathematical formulas to compute coordinates and solve gearing and threading problems.
4. translate and apply basic knowledge of physics-mechanics to machine tool problems such as power transmission, machining, etc.
5. operate and set up basic machine tools.
6. operate machine tools to produce gears, threads, and gages.
7. operate and set up numerically controlled machines, electrical discharge, and electrical chemical machines.
8. operate various types of abrasive cutting machines and practice heat treating of metals, such as hardening, annealing, and carburizing.
9. prepare and revise technical papers for shop use in the operation of machine tools and machining procedure.

Marketing/Merchandising (MM)
Associate Degree/Two Years

This program provides a strong background in the field of marketing, merchandising, retailing, and related business fields.

Types of Jobs: Retailers, buyers, wholesalers, purchasing agents, sales managers, salespersons, salesworkers, marketing managers, distribution managers.

FIRST SEMESTER

			Credits
ACC	112	Accounting I	3
MGT	110	Principles of Business	3
MGT	111	Business Mathematics	3
SEC	111	Typewriting I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
MKT	234	Retail Merchandising I	3
MKT	243	Sales	3
ACC	122	Accounting II	3
MGT	230	Business Communications	3
MGT	231	Business Law I	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
MKT	244	Retail Merchandising II	3
CSC	118	Fundamentals of Computer Science	3
ECO	201	Principles of Economics	3
ENL	202	Fundamentals of Speech	3
		Elective-Social Science	3
			15

FOURTH SEMESTER

			Credits
MKT	240	Marketing	3
MKT	246	Fashion Merchandising	3
ADV	101	Principles of Advertising	3
MGT	248	Supervision & Human Relations	3
		Elective	3
			15

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general goal of the Marketing/Merchandising program is to prepare the graduate to obtain employment in middle management in the private sector of the retail and/or wholesale field. Alternatives may be to pursue advanced study or to add to the competencies of those currently employed in the field.

The graduate should be able to:

1. review and appraise the administrative processes and policies for marketing and retail merchandising.
2. evaluate customer behavior and motivation as it applies to a profitable enterprise.
3. compose advertising campaigns using the media that is most effective in terms of cost, consumer appeal, and desired results.
4. distinguish the steps involved in identifying and segmenting a market.
5. relate in a positive manner to supervisors, peers, and subordinates on an interpersonal level.
6. demonstrate skill in effective oral and written communications.
7. apply analytical techniques in the preparation of financial statements and inventory systems.
8. demonstrate general knowledge of electronic data processing and point of sale equipment.
9. identify the legal aspects affecting business.
10. identify the need for physical fitness and positive leisure activities.

Nursery Management (NM)
Ornamental Horticulture Technology (OH)
Associate Degree/Two Years

This program prepares the student to propagate, grow to a commercial size and profitably sell the many species and varieties of woody plants. It also covers the identification of commercially important plants and the design, construction and maintenance of landscape plans and features.

Types of Jobs: Propagation and production of trees and shrubs in field or container nurseries; nursery stock buyer; agent or salesperson; retail (garden center) sales; horticulturist with a government agency (city, state, federal), landscaping, or your own business.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
OHT	114	Horticulture Soils	3
OHT	115	Woody Plants I	2
OHT	116	Herbaceous Plants	3
BIO	111	Basic Botany	3
ENL	111	English Composition I	3
MTH	500	Technical Mathematics II	3
			17

SECOND SEMESTER

			Credits
NMG	121	Nursery Production I	3
NMG	126	Woody Plants II	3
CHM	100	Fundamentals of Chemistry	
		or	4
CHM	105	General Organic Chemistry	
ENL	121	English Composition II	3
PED		Physical Education	1
			14

THIRD SEMESTER

			Credits
NMG	232	Nursery Production II	3
NMG	237	Woody Plants III	3
OHT	234	Plant Propagation	3
OHT	239	Plant Insects and Diseases	3
PED		Physical Education	1
		Elective-General*	3/4
			16/17

FOURTH SEMESTER

			Credits
NMG	245	Landscape Construction	3
NMG	248	Landscape Maintenance	3
NMG	249	Landscape Design	3
OHT	246	Horticulture Mechanics	3
		Elective-General*	3/4
			15/16

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The goal of the Nursery Management program is to prepare the student to obtain employment, or to be self-employed, in the areas of growing nursery crops, retail and garden center sales, landscape fields or related businesses.

A graduate of Nursery Management should be able to:

1. interpret basic knowledge of botany, chemistry, and horticulture soils as they relate to plant growth and culture.
2. identify the communication skills necessary to organize thoughts and ideas and communicate, orally and in writing, in a manner that can be easily understood.
3. solve mathematics problems relating to the use of soil amendments, fertilizers, and plant growth control chemicals, and demonstrate proper cost estimating, pricing, and record keeping.
4. identify deciduous trees and shrubs, narrow and broad-leaved evergreens, cultivars, and varieties by botanical and common name and point out their distinguishing characteristics, landscape uses and applications.
5. identify various annuals, biennials, and perennial herbaceous plants, and summarize landscape, garden center, and greenhouse use and cultural requirements of these plants.
6. describe the various types of nurseries, nursery growing structures, related facilities, equipment, and handtools and define proper location and design factors of nursery facilities.
7. demonstrate the commercial growing of plants in field and container operations on a scheduled production basis.
8. identify and describe the effect of insects, diseases, and physiological problems on plants, plan for proper control of these problems, and obtain the Pennsylvania Private Applicator's License.
9. select the proper procedures, define the physiological basis, and describe practical applications of the reproduction of plants by sexual and asexual methods.
10. demonstrate the proper and effective use of woody and herbaceous plant materials in developing public and domestic landscape areas.
11. prepare landscape construction features such as waterfalls, pools, steps, walks, walls, and patios using materials such as flagstone, brick, railroad ties, mountain stone, and epoxy stone.
12. identify and use procedures such as pruning, fertilizing, and spraying in the maintenance of existing landscapes.
13. demonstrate an understanding of the operation and repair of equipment and mechanical systems utilized in the nursery industry.
14. demonstrate a responsible attitude in personal relationships with employers, fellow employees, and the world of work.
15. demonstrate an appreciation of physical fitness and lifelong recreational activities.

Operating Room Technician (OT) (Surgical Technology) Certificate/One Year

Completion of this program enables the student to function under the direction of a Registered Nurse as a scrub or circulating technician on the operating room team during operations and includes the care, preparation, and maintenance of all sterile and unsterile supplies and equipment used in the operating room. See page 5 for special admission requirements for this program.

Types of Jobs: Member of surgical team in hospital operating rooms and central service departments or other areas closely concerned with the principles and practice of surgical asepsis.

FIRST SEMESTER

			Credits
ORT	710	Body Structure and Function	5
ORT	711	Operating Room Techniques I	13
			18

SECOND SEMESTER

			Credits
ORT	720	Operating Room Techniques II	4
ORT	721	Supervised Clinical Experience	10
		Optional Elective	0/3
			14/17

PROGRAM OBJECTIVES

The general program objective is to provide students with the academic and practical training to enable graduates to function as skilled technicians in a hospital operating room or central services department.

The Operating Room Technician graduate should be able to:

1. utilize background knowledge in the basic sciences, surgical anatomy, and aseptic technique, and demonstrate their application to surgery.
2. describe operating room technique and its relationship to good patient care in order to perform tasks as delegated and supervised by professional nursing personnel.
3. practice good personal hygiene and state its relationship to reducing the incidence of infection.
4. describe the relationship between the operating room and other departments of the hospital.
5. identify the need for adhering to hospital policies, and ethics, and medical, moral, and legal codes.
6. describe the essential nature of honesty in developing a rigid aseptic conscience, its application to the operating room and its relationship to an uncomplicated post-operative recovery for the patient.
7. adapt aseptic principles when encountering the unexpected emergency situation.
8. demonstrate knowledge and understanding of the demands of all surgical procedures in order to function as a member of the surgical team, giving appropriate service to the surgeon and thereby meeting the needs of the patient.
9. identify and describe the cost, preparation, use, care and after-care of equipment, instruments and supplies, and their importance to the safe and expeditious performance of surgical procedures.
10. demonstrate an awareness of the responsibilities and limitations of the role of the operating room technician, and be able to function within these limits.
11. state the extent of liability of operating room technicians and the importance of proper, adequate, direct supervision.
12. describe the organization of the hospital, the physical plant, and personnel requirements, practices, and policies.
13. practice economy of time, motion, and material as well as demonstrate accuracy, speed, emotional stability, and physical stamina.
14. demonstrate adequate consideration of the physical, spiritual, and emotional needs of the patient.

Plumbing and Heating (PL)
Certificate/Two Years

The student is taught the basic theories of plumbing and heating, soil waste and vent layout, household and industrial maintenance, sewage systems, and the use of hand and power tools. The fundamentals of communications and mathematics are also covered. Training is provided in all types of plumbing and heating repair work used in residential, institutional, and commercial applications.

Types of Jobs: Plumbing and heating installation, industrial maintenance, public utilities service, machine work and shipbuilding industries.

FIRST SEMESTER

			Credits
PLH	711	Plumbing and Heating I (8 weeks)	6
PLH	712	Plumbing and Heating II (8 weeks)	6
MTH	710	Technical Mathematics I	3
			15

SECOND SEMESTER

			Credits
PLH	721	Plumbing and Heating III (8 weeks)	6
PLH	722	Plumbing and Heating IV (8 weeks)	6
WEL	703	Electric Welding	2
ENL	711	Communications	3
			17

THIRD SEMESTER

			Credits
PLH	833	Plumbing and Heating V (8 weeks)	7
PLH	832	Plumbing and Heating VI (8 weeks)	6
ELT	110	Electricity for the Trades	3
		Optional Elective	0/3
			16/19

FOURTH SEMESTER

			Credits
PLH	841	Plumbing and Heating VII (8 weeks)	6
PLH	842	Plumbing and Heating VIII (8 weeks)	6
		Optional Elective	0/3
			12/15

Co-op Options:
Alternating
Parallel
Summer

PROGRAM OBJECTIVES

The goal of the Plumbing and Heating program is to develop marketable entry-level skills for employment in the field of plumbing and heating.

A graduate of the Plumbing and Heating program should be able to:

1. apply knowledge of safety and demonstrate good work habits in the trade.
2. use hand and power tools of the trade.
3. identify piping materials and install them using proper connections.
4. use and apply trade terms and technical data.
5. read and interpret blueprints, specifications, and codes as they apply to the trade.
6. lay out, estimate, calculate, and use mathematical skills as required in the trade.
7. install, maintain, and repair plumbing and heating mechanical systems and equipment and keep abreast of new developments in the field.
8. demonstrate the capability to write letters of application, memos, work orders, and reports, and apply communication skills in the world of work.
9. perform necessary welding functions as related to the plumbing and heating trade.
10. apply basic knowledge and skills of electrical work to adequately install, repair, maintain, and troubleshoot electrical controls as related to plumbing and heating.

Practical Nursing (NU)
Certificate/Fifty-Two Weeks

Classroom instruction in theory and basic skills is given on the WACC campus. Practical experience in actual patient care settings is obtained at the two local hospitals (Williamsport Hospital and Divine Providence Hospital) and at the Lysock View Home and Hospital. Under the guidance of college instructors at the cooperating institutions, students gain experience in the care of adult patients and in maternal and child health nursing. Mental health concepts, pharmacology, and diet therapy are integrated throughout the program. See page 5 for special admission requirements for this program.

Types of Jobs: Employment in hospitals, convalescent homes, visiting nurses association, doctor's office, private duty.

FIRST SEMESTER-16 Weeks of 33 Hours Each

		Credits
NUR 710	Foundations of Nursing	12
NUR 711	Nursing Relationships	3
NUR 712	Scientific Principles Relating to Nursing	6
		21

SECOND SEMESTER-15 Weeks of 30 Hours Each

		Credits
NUR 723	Medical-Surgical Nursing—Elementary*	9
NUR 724	Parental and Child Health**	9
		18

THIRD SEMESTER-15 Weeks of 30 Hours Each

		Credits
NUR 735	Medical-Surgical Nursing—Intermediate	18
		18

PRACTICUM-3 Weeks of 25 Hours Each

NUR 736	Practicum	2
		2

Theory—600 Hours 2/5 Ratio
Practicum—903 Hours 3/5 Ratio
Total—1,503 Hours

VACATION-3 Weeks

*NUR 723-15 wks lecture/7 wks lab
**NUR 724-15 wks lecture/8 wks lab

PROGRAM OBJECTIVES

A graduate of The Williamsport Area Community College Practical Nursing program will be able to share in the care of the sick, in rehabilitation, and in the prevention of illness, always under the direction of a licensed physician and/or registered professional nurse. The program also provides the academic and practical educational experiences which enable graduates to pass a state board examination and thereby obtain a license.

At the completion of the Practical Nursing program, the graduate should be able to:

1. utilize, under supervision, scientific knowledge and skills necessary to plan and provide safe and comprehensive client-centered nursing care of the subacutely and chronically ill of all ages.
2. perform nursing care that reflects accurate assessments of the client's growth and development.
3. utilize the problem-solving approach in administering nursing care.
4. utilize effective communication skills.
5. assist the professional and technical nurse in the care of the acutely ill patient.
6. demonstrate knowledge of community health agencies in meeting health needs of society.
7. demonstrate an acceptable code of ethical behavior according to standards set by health care delivery agencies.

Printing (GP)
Certificate/Two Years

This program examines the many complex operations and occupations involved in modern printing. All printing operations are covered to insure versatility in the field.

Types of Jobs: Camera work, stripper, layout work, compositor, platemaker, and press work.

FIRST SEMESTER

			Credits
GCO	511	Layout and Design	4
GCO	512	Typographic Composition	4
ENL	711	Communications	3
MTH	710	Technical Mathematics I	3
SEC	509	Typewriting	1
			15

SECOND SEMESTER

			Credits
GCO	521	Process Camera	4
GCO	522	Film Assembly and Imposition	4
MGT	247	Small Business Management	3
MTH	500	Technical Mathematics II	3
		Elective	3
			17

THIRD SEMESTER

			Credits
GCO	631	Platemaking, Substrates & Finishing	4
GCO	632	Press Operations	4
GCO	635	Printing Estimating Practices	3
CHM	299	Chemistry of Lithography	3
		Elective	3
			17

FOURTH SEMESTER

			Credits
GCO	641	Advanced Typographic Composition	3
GCO	642	Advanced Process Camera and Stripping	3
GCO	645	Printing Processes	3
CSC	118	Fundamentals of Computer Science	3
			12

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Printing program is to prepare students for employment in the printing field in large and small operations.

A graduate of the Printing program should be able to:

1. recognize the major printing processes, their respective products, and the relative merits of each process.
2. perform in the areas of layout and design, copy preparation and composition, continuous tone and reproduction photography, stripping, platemaking, presswork, estimating and finishing with a level of proficiency suitable for job entry as an advanced learner.
3. appraise his/her abilities and limitations in the various areas comprising graphic arts.
4. demonstrate the personal traits of promptness, willingness to work, and the ability to accept supervision.
5. demonstrate respect for equipment and use appropriate safety precautions when working around such equipment.
6. compare production departments and the contributions each makes to the total product.
7. write clear, concise, legible, and accurate technical reports using proper language structure.
8. demonstrate skill in basic oral communications.
9. solve basic mathematical problems related to printing operations.

Radiologic Technology (RT)
Associate Degree/Two Years

This program includes courses in anatomy, physiology, physics, medical terminology, professional ethics, and radiologic equipment and safety as well as English and mathematics. Practical experience with sick and injured patients, under qualified technical supervision in local affiliated hospitals, will be an important aspect of training. Students are exempt from the Physical Education Program. Internships are required to establish eligibility for the registry examinations necessary to qualify as a registered radiologic technologist. Arrangements for the summer internships will be made with the affiliated hospitals. Approximately 2400 practicum hours are obtained throughout the 24 consecutive month period allowing the student to sit for the registry exam. The RT program is to be completed during a 24 consecutive month period. See page 5 for special admission requirements for this program.

Types of Jobs: Hospital facilities, doctors and radiologists in private practice, civilian and military government agencies, industry.
Recommended High School Subjects: Two years of algebra.

FIRST SEMESTER

			Credits
RAD	110	Radiologic Technology I	5
BIO	115	Human Anatomy and Physiology I	4
MTR	101	Medical Terminology I	3
ENL	111	English Composition I	3
MTH	103	College Algebra	3
			18

SECOND SEMESTER

			Credits
RAD	120	Radiologic Technology II	7
BIO	125	Human Anatomy and Physiology II	4
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
			17

RAD	200	FIRST SUMMER INTERNSHIP	No Credit

THIRD SEMESTER

			Credits
RAD	230	Radiologic Technology III	10
PHS	112	Introductory Physics	4
		Elective-Psychology*	3
			17

FOURTH SEMESTER

			Credits
RAD	240	Radiologic Technology IV	10
PHS	122	Radiation Physics	3
SOC	111	Introduction to Sociology	3
			16

RAD	200	SECOND SUMMER INTERNSHIP	No Credit

*Psychology Electives:

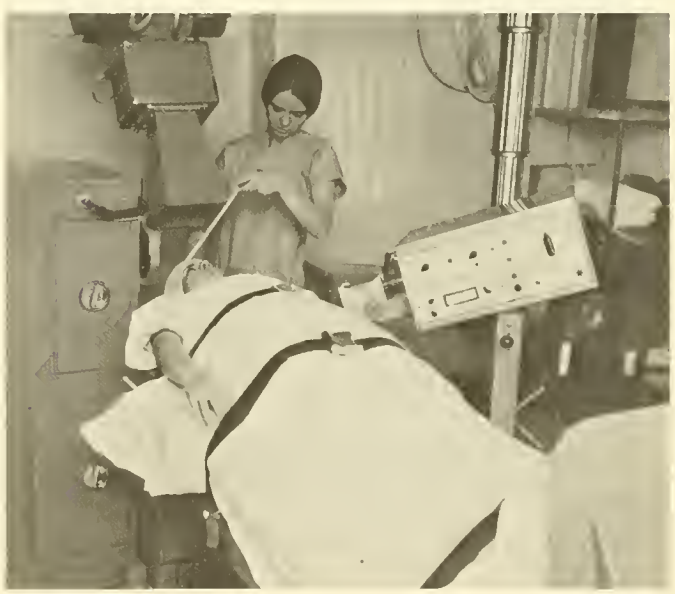
PSY	111	General Psychology	3
PSY	201	Abnormal Psychology	3
PSY	241	Social Psychology	3

PROGRAM OBJECTIVES

The general program objective is to provide students with the academic and practical educational experiences which will enable them to pass the National Radiological Technology Registry Examination and to qualify for employment as a registered radiologic technologist. Graduates will also be able to transfer to a four-year program in radiological technology.

The Radiologic Technology graduate should be able to:

1. distinguish between the different types of imaging systems.
2. recognize differences between diagnostic and inferior quality radiographs.
3. understand and utilize knowledge of the general effects of radiation on the body.
4. apply knowledge of basic electronics and physics necessary in daily radiographic practice.
5. describe the effects of ionizing radiation in biological systems.
6. operate effectively within and be fully aware of the basic organizational structure of a radiology department.
7. use knowledge of anatomy, positioning, and radiographic techniques to accurately demonstrate anatomical structure on a radiograph.
8. state the importance of providing for the physical and emotional needs of the patient.
9. apply knowledge of mathematical calculations to determination of exposure factors.
10. utilize effective communication skills.
11. use correct medical and anatomical terminology as applied to radiological technology.



Respiratory Therapy Technician (HC) Certificate/16 Months

The Respiratory Therapy Technician program is offered in cooperation with Harrisburg Area Community College. The program is designed to assist in preparing the student for a career in the field of respiratory therapy. Respiratory therapists work with physicians and nurses in providing care to patients with deficiencies and abnormalities of the cardiopulmonary system. On completion of the 16-month program, the student will receive a certificate in Respiratory Therapy. A year of working experience is required before graduates are eligible for certification by the National Board for Respiratory Therapy. The 16-month program includes didactic and applied clinical training at participating community hospitals. Students are required to earn a minimum overall grade point average of 2.0 and earn a minimum grade of C in each mathematics and science course in order to be awarded a certificate of completion.

Students may complete all related course work at The Williamsport Area Community College on a full-time or part-time basis. Specialized Respiratory Therapy courses will be completed at Harrisburg Area Community College. Clinical and Neo-Natal experiences will be completed at Divine Providence and Williamsport hospitals and at Geisinger Medical Center. Please see page 5 for special admission requirements for this program.

Types of Jobs: Respiratory therapy technician providing patient care in hospitals and clinics.
Recommended High School Subjects: Chemistry, biology, two years of algebra.

REQUIRED COURSES

Course Title	Credit/Hrs.	WACC No.	HACC No.
College Algebra	3	MTH 103	MATH 103
Allied Health (Intro to Health Field)	3	NUR 711	Allied Health 140
Anatomy and Physiology I	4	BIO 115	BIO 121
Anatomy and Physiology II	4	BIO 125	BIO 122
Microbiology	4	BIO 201	BIO 221
Principles of Chemistry	3	CHM 100	CHEM 121
Respiratory Therapy Survey	3	–	Allied Health 111
Physiological Pathology	3	–	BIO 230
Respiratory Therapy I	8	–	Allied Health 112
Respiratory Therapy II	8	–	Allied Health 113
TOTAL CREDIT HOURS	43		

Secretarial Science (BS)-Executive Associate Degree/Two Years

This program provides proficiency in the secretarial skills of typing, shorthand, and general office practices. Supplementary courses in accounting, business, and liberal studies are included in the program.

Types of Jobs: Business, commerce, government, industry, or the professions.

FIRST SEMESTER

			Credits
MGT	230	Business Communications	3
MGT	111	Business Mathematics	3
SEC	111	Typewriting I	3
SEC	114	Shorthand I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
ACC	121	Elementary Accounting	3
SEC	121	Typewriting II	3
SEC	124	Shorthand II	3
SEC	129	Secretarial Procedures	3
		Social Science Elective	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
SEC	231	Typewriting III	3
SEC	234	Shorthand Workshop	6
ENL	202	Fundamentals of Speech	3
MGT	110	Principles of Business	3
			15

FOURTH SEMESTER

			Credits
SEC	244	Secretarial Workshop	8
SEC	245	Office Internship	1
MGT	248	Supervision & Human Relations	3
		Elective	3
			15

Co-op Options:
Parallel
Summer

Secretarial Science (BS)-Legal Associate Degree/Two Years

This program provides proficiency in the secretarial skills of typing, shorthand, the operation of business machines, and general office practices. Supplementary courses in business law and liberal studies are included in the program.

Types of Jobs: Business, commerce, and law.

FIRST SEMESTER

			Credits
MGT	230	Business Communications	3
MGT	111	Business Mathematics	3
SEC	111	Typewriting I	3
SEC	114	Shorthand I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
ACC	121	Elementary Accounting	3
SEC	121	Typewriting II	3
SEC	124	Shorthand II	3
SEC	129	Secretarial Procedures	3
		Social Science Elective	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
SEC	231	Typewriting III	3
SEC	234	Shorthand Workshop	6
ENL	202	Fundamentals of Speech	3
MGT	231	Business Law I	3
			15

FOURTH SEMESTER

			Credits
SEC	244	Secretarial Workshop	8
SEC	245	Office Internship	1
MGT	241	Business Law II	3
		Elective	3
			15

Co-op Options:
Parallel
Summer

Secretarial Science (BS)-Medical Associate Degree/Two Years

This program provides proficiency in the secretarial skills of typing, shorthand, the operation of business machines, and general office practices. Supplementary courses in biology, medical terminology, and liberal studies are included in the program.

Types of Jobs: Doctors, dentists, hospitals, and various health occupation offices.

FIRST SEMESTER

			Credits
MGT	230	Business Communications	3
MGT	111	Business Mathematics	3
SEC	111	Typewriting I	3
SEC	114	Shorthand I	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
ACC	121	Elementary Accounting	3
SEC	121	Typewriting II	3
SEC	124	Shorthand II	3
SEC	129	Secretarial Procedures	3
BIO	121	Basic Anatomy & Physiology	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
SEC	231	Typewriting III	3
SEC	234	Shorthand Workshop	6
ENL	202	Fundamentals of Speech	3
MTR	101	Medical Terminology I	3
			15

FOURTH SEMESTER

			Credits
SEC	244	Secretarial Workshop	8
SEC	245	Office Internship	1
		Social Science Elective	3
MTR	102	Medical Terminology II	3
			15

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Secretarial Science program is to enable the student to master one of three secretarial fields: executive, legal, or medical. Distinct and singular studies related to each field are stressed along with a broad spectrum of general and basic education courses to enable graduates to enter and to progress in the secretarial profession.

The graduate should be able to:

1. demonstrate proficiency in administrative secretarial skills.
2. apply terminology, utilize forms, and use other skills unique to the area of specialization – executive, legal, or medical.
3. compose effective written and oral communications.
4. employ competencies in specialized secretarial office procedures.
5. illustrate extensive knowledge of modern office equipment and office supplies.
6. apply working knowledge of advanced reprographics, word and information processing, and computational skills.
7. assess and influence behavior among supervisors, peers, and subordinates.
8. apply general knowledge of the social sciences, and possess an awareness of their effect on our society.
9. identify the need for physical fitness and positive leisure activities.

Service and Operation of Heavy Construction Equipment (SO) Certificate/Two Years

This program provides the student with the principles of maintaining, repairing and operating many types of construction equipment. It includes the rebuilding of internal combustion engines, basic surveying, and complete mechanical safety measures.

Types of Jobs: Operation, mechanical repair, service of heavy equipment. Self-employed or work with contractors, dealers, miners, and quarriers.

FIRST SEMESTER

			Credits
SOE	713	Service and Operation I (8 weeks)	7
SOE	714	Service and Operation II (8 weeks)	7
MTH	710	Technical Mathematics I	3
			17

SECOND SEMESTER

			Credits
SOE	725	Service and Operation III (8 weeks)	7
SOE	726	Service and Operation IV (8 weeks)	7
ENL	711	Communications	3
			17

THIRD SEMESTER

			Credits
SOE	837	Service and Operation V (8 weeks)	7
SOE	838	Service and Operation VI (8 weeks)	7
		Optional Elective	0/3
			14/17

FOURTH SEMESTER

			Credits
SOE	847	Service and Operation VII (8 weeks)	6
SOE	848	Service and Operation VIII (8 weeks)	6
		Optional Elective	0/3
			12/15

Co-op Options
- Alternating
- Parallel
- Summer

PROGRAM OBJECTIVES

The general objective of the Service and Operation of Heavy Equipment program is to provide the student with the instruction required to qualify for a position in various phases of the construction equipment industry and at various levels of employment.

A graduate of Service and Operation should be able to:

1. practice approved safety procedures and incorporate them into various work situations.
2. read and interpret equipment manuals and issue clear, legible, and complete service reports.
3. identify and manipulate tools of the trade.
4. describe the operation and demonstrate troubleshooting, maintenance and repair of internal combustion engines.
5. troubleshoot, maintain, and repair the complete power train with its related components such as brake systems.
6. demonstrate the use of oxyacetylene welding, cutting, brazing, and electric welding applications.
7. distinguish the various types of hydraulic systems, power shift transmissions, torque converters, fuel systems, and heavy duty electrical systems found on construction equipment as well as maintain, troubleshoot, and repair these systems.
8. demonstrate the use of transits and hand levels as applied to construction layouts.
9. apply preventive maintenance techniques to all heavy equipment systems.
10. demonstrate the use of various pieces of heavy equipment employing earth-moving techniques accepted by industry.
11. use appropriate mathematical skills and competencies to solve applied problems in the field of heavy equipment.
12. identify the personal attributes required for successful relationships with employers, customers, and fellow employees.

Sign Painting (SP)
Certificate/Two Years

This program provides practical experience in lettering skills, design, layout and type finishing of signs and showcards. Materials, equipment, and safety practices used in painting, building, and sign erecting are stressed.

Types of Jobs: Self-employment; work with sign painters, bottlers, outdoor advertisers, department stores, theaters, television stations, and truck fleets.

FIRST SEMESTER

			Credits
SIG	711	Sign Painting I	10
MTH	710	Technical Mathematics I	3
			13

SECOND SEMESTER

			Credits
SIG	721	Sign Painting II	10
ENL	711	Communications	3
			13

THIRD SEMESTER

			Credits
SIG	811	Sign Painting III	10
		Elective*	3
			13

FOURTH SEMESTER

			Credits
SIG	821	Sign Painting IV	10
		Elective*	3
			13

*Suggested Electives

ACC	121	Elementary Accounting
MGT	247	Small Business Management

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The overall objective of the program is to prepare students for employment as sign painters.

A graduate of the Sign Painting program should be able to:

1. construct the basic alphabet using pencil techniques.
2. use showcard paint in the construction of signs.
3. name, use, and care for brushes and special tools of the sign painting field.
4. lay out and paint paper signs and showcards using basic strokes, construction, and tempera color.
5. create (design, lay out, and paint) simple showcard and paper signs.
6. use bulletin colors, lettering quills, and brushes to produce a variety of signs.
7. letter with bulletin colors on a variety of surfaces including glass, metal, wood, plastic, and paper.
8. design and produce signs using gold leaf techniques.
9. design and produce small billboards.
10. use elementary math operations (addition, subtraction, multiplication, division) including decimals, fractions, and conversions, as they apply to sign painting.
11. write clear, concise, legible, and accurate reports, business memorandums, and business letters.

Technical Illustration (TI)
Associate Degree/Two Years

This program prepares the student to interpret engineering drawings into three-dimensional illustrations. The program provides drawing and art skills, coupled with humanities, mathematics, and communications courses to enhance occupational opportunities.

Types of Jobs: Technical illustrator for industry, either in an engineering or publications department. In the engineering field you would produce clear, accurate pictures drawn from blueprints for engineers; in publications, you would produce illustrations for company literature; parts and sales catalogs; maintenance, repair, and assembly manuals, charts, and handbooks.
Recommended High School Subjects: Two years of algebra, one year of science.

FIRST SEMESTER

			Credits
EDT	111	Basic Drafting I (8 weeks)	4
EDT	112	Basic Drafting II (8 weeks)	4
ART	111	Basic Drawing	3
ENL	111	English Composition I	3
MTH	103	College Algebra	3
			17

SECOND SEMESTER

			Credits
EDT	121	Power Transmission (8 weeks)	4
EDT	122	Mechanisms (8 weeks)	4
MTH	104	College Trigonometry	3
PED		Physical Education	1
		Elective*	3
			15

THIRD SEMESTER

			Credits
EDT	106	Industrial Processes	2
ART	121	Basic Painting	3
ART	232	Lettering and Layout	3
GCO	515	Layout and Design	3
GCO	516	Typographic Composition	3
PED		Physical Education	1
		Elective*	3
			18

FOURTH SEMESTER

			Credits
ART	241	Media and Techniques	3
GCO	525	Process Camera	3
GCO	526	Film Assembly and Imposition	3
ENL	121	English Composition II	3
		Elective*	3/4
			15/16

*Suggested Electives

MGT	110	Principles of Business	3
ENL	202	Fundamentals of Speech	3
GOV	231	American Government-National	3
GOV	241	State and Local Government	3
HIS	111	Western Civilization I	3
HIS	121	Western Civilization II	3
HIS	231	U.S.—Survey I	3
JOU	232	Copyreading and Editing	3
PSY	111	General Psychology	3
SOC	111	Introduction to Sociology	3
ECO	201	Principles of Economics	3
ESC	100	Environmental Science	3
GEL	105	Physical Geology	4

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of the Technical Illustration program is to prepare the student with the skills and competencies necessary for employment as a technical illustrator in industry, or for transfer to a baccalaureate degree program.

A graduate of the Technical Illustration program should be able to:

1. interpret engineering drawings into three-dimensional illustrations.
2. letter and lay out using a variety of mediums, black and white and color, both in line and continuous tone.
3. relate technical knowledge to the areas listed above in order to make rational decisions.
4. follow written and oral directions.
5. demonstrate respect for equipment and use appropriate safety precautions when working around such equipment.
6. demonstrate the personal traits of promptness, willingness to work, and receptivity to supervision.
7. utilize appropriate mathematical competencies necessary for job performance and for the development of visualization skills and logical thought processes.
8. communicate clearly, both orally and in writing.
9. demonstrate knowledge of a lifetime sport which will provide recreation and promote physical fitness.

Technology Studies (TS) Associate Degree

Technology Studies is a flexible program designed especially for, but not limited to, people currently employed in industry or business. Course selection is based almost entirely upon the goals of the individual student. As many as 30 credits may be awarded through advanced placement, credit by examination, or credit for work/life experience, thus reducing the number of courses to be completed on campus. Most students will complete this program on a part-time basis; therefore, a number of specialized courses will be offered in a rotating sequence to provide increased scheduling opportunities.

The minimum requirements for the Associate Degree in Technology Studies are:

1. Successfully complete a minimum of 60 credit hours of associate degree level courses (see page 73 for definition) in a planned program of study.

2. The 60 credit hours must include at least 18 credits of general education core courses selected from the following:

	Credits
Communications	6
Mathematics	6
Natural Sciences	3/4
Social Sciences and Humanities	3
	18/19

3. Forty-two credits must be taken as electives. Thirty elective credits must be taken in technical career or vocational courses which are applicable to the Associate of Applied Science degree. Elective courses should be selected primarily on the basis of the student's vocational goals. The electives enable the student to select those vocational and/or general education courses which best meet his/her career, professional, and personal objectives.

4. The student must have participated in a planned educational program of studies. This plan should be developed in conjunction with an advisor and be filed with the appropriate division director prior to the completion of the first 18 hours of credit.

INDIVIDUAL CURRICULUM POSSIBILITIES

In consultation with an advisor, the student may select precisely those courses which best meet his/her needs and allow him/her to reach a chosen goal. Examples of groups of courses which a student might select in designing his/her program are shown below.

Industrial Emphasis—Courses selected may include:

Courses in specialized fields, such as Machine Tool Technology, Electronics, Automotive Technology (based on student interest and course availability)
Industrial and Organizational Psychology
Supervision and Human Relations
Quality Control
Motion and Time Study
Specialized mathematics, such as statistics, applied calculus
Technical Writing

Engineering Emphasis—A student taking the Engineer in Training (EIT) courses (see page 71) may use completed EIT courses to fulfill requirements of the Technology Studies Degree. These courses are offered on a rotating, part-time basis and include:

Statics
Strength of Materials I
Dynamics
Fluid Mechanics
Strength of Materials II
Engineering Economics
Engineering Chemistry
Thermodynamics
Engineering Physics
Engineering Electronics

Management and Supervision Emphasis—Courses selected may include:

Principles of Business
Business Communications
Economics
Accounting
Supervision and Human Relations
Small Business Management
Psychology
Business Law
Specialized Mathematics
Computer Science
Specialized technical courses directed toward the student's vocational objectives

PROGRAM OBJECTIVES

The general objective of the Technology Studies program is to enable the employed person to upgrade his/her skills and knowledge, whether for personal or professional reasons.

The graduate should be able to:

1. demonstrate potential for growth through the use of skills and competencies acquired.

2. formulate ideas logically and organize them into a productive plan to accomplish a chosen goal.

3. demonstrate increased vocational knowledge and skills.

4. illustrate an attitude of responsibility to self, employer, and community.

5. communicate effectively in interpersonal and job related activities.

6. demonstrate comprehensive knowledge of communication and mathematical skills.

7. apply general knowledge of the social and natural sciences and possess an awareness of their effect on our environment.

Tool Design Technology (TD)
Associate Degree/Two Years

This program provides instruction in drafting and tool production techniques and in the production of tool drawings. It emphasizes planning and making drawings of special mechanical devices (dies, gages, cutting tools, jigs, fixtures) ranging from simple hand tools to complex progressive dies. The student is taught to write programs for production jobs on tape-controlled machines.

Types of Jobs: Tool, machine, and product designer; numerical programmer, design drafting, estimator, and systems program designer.
Recommended High School Subjects: Two years of algebra.
*GENERAL ELECTIVES are courses chosen from outside your program of concentration.

FIRST SEMESTER

			Credits
EDT	106	Industrial Processes	2
EDT	111	Basic Drafting I (8 weeks)	4
EDT	112	Basic Drafting II (8 weeks)	4
ENL	111	English Composition I	3
MTH	103	College Algebra	3
PED		Physical Education	1
			17

SECOND SEMESTER

			Credits
EDT	121	Power Transmission (8 weeks)	4
EDT	122	Mechanisms (8 weeks)	4
ENL	121	English Composition II	3
MTH	104	College Trigonometry	3
PED		Physical Education	1
			15

THIRD SEMESTER

			Credits
TDT	231	Tool Drafting (8 weeks)	4
TDT	232	Fixture Design (8 weeks)	4
PHS	100	Physics-Mechanics	4
		Elective-General*	3/4
			15/16

FOURTH SEMESTER

			Credits
TDT	241	Gage Design and Programming (8 weeks)	4
TDT	242	Die Design (8 weeks)	4
PHS	106	Introduction to Metallurgy	4
		Elective-General*	3/4
			15/16

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The general objective of this program is to prepare the student with the skills and competencies necessary to enter the tool design area of engineering.

A graduate of the Tool Design Technology program should be able to:

1. describe and apply the various methods of manufacturing as they relate to tool design.
2. select cutting tool materials to satisfy various metal removal operations.
3. apply tolerance limits and fits to satisfy the required manufacturing process.
4. apply calculations to determine cutting speeds and feeds for various metal removal applications.
5. design jigs and fixtures to hold tools and workpieces for the various metal removal applications.
6. design various kinds of gages and gaging setups to insure quality control.
7. write numerical control programs.
8. design piercing, stamping, and forming dies.
9. apply the basic principles of physics and metallurgy to the tool design process.
10. utilize the appropriate mathematical skills and competencies to solve applied problems in the design process.
11. communicate effectively in small group and interpersonal situations that may occur in industry.
12. function as an informed and participating citizen in a democratic society through exposure to the humanities and social sciences.
13. develop and utilize the fundamental skills provided through exposure to lifetime sports.

Welding (WE)
Certificate/Two Years

This program emphasizes theory and manipulative skills. It stresses developments and techniques in electric, oxyacetylene, and inert gas shielded methods of welding.

Types of Jobs: Welder, welder operator, fitter, specialist, supervisor, and inspector.

FIRST SEMESTER

			Credits
WEL	712	Acetylene Welding	13
MTH	710	Technical Mathematics I	3
			16

SECOND SEMESTER

			Credits
WEL	722	Electric Welding	13
ENL	711	Communications	3
			16

THIRD SEMESTER

			Credits
WEL	832	Inert Gas Welding	13
EDT	107	Blueprint Reading	2
		Optional Elective	0/3
			15/18

FOURTH SEMESTER

			Credits
WEL	842	Welding (Advanced)	13
		Optional Elective	0/3
			13/16

Co-op Options:
Parallel
Summer

Welding classes are held in the new Avco-Lycoming Metal Trades Center.

PROGRAM OBJECTIVES

The general objective of this program is to prepare the student with marketable skills in the general field of welding.

A graduate of the Welding program should be able to:

1. demonstrate proficiency in welding skills employing the oxyacetylene, shielded metal arc, gas tungsten arc, and gas metallic arc welding processes.
2. operate power equipment essential to perform welding operations.
3. employ safe welding practices common to shop and field operations.
4. distinguish types of welding power sources, their characteristics, uses, and limitations.
5. perform visual, destructive, and non-destructive testing and inspection methods.
6. construct weldments from sketches, blueprints or verbal instructions employing proper use of welding symbols.
7. select the proper welding process, welding procedures, supplies, etc., within reasonable economic limitations.
8. employ simple shop methods for determining types of metals (ferrous and non-ferrous).
9. apply the physical and mechanical properties of metals, as related to weldability, during the welding process.
10. perform duplication of welding qualification tests according to specifications of American Welding Society, The American Society of Mechanical Engineers and the American Petroleum Institute Codes.
11. develop positive societal and work habits
12. utilize the appropriate mathematical skills and competencies to solve applied problems in the field of welding.
13. demonstrate basic skills in speech and technical writing.

Wood Products Technology (WD)
Associate Degree/Two Years

Wood Products Technology is designed to prepare students for mid-management positions in the wood processing and manufacturing industries and to improve the management capabilities of people presently employed in the wood industry. The program combines courses in wood processing with courses in business to prepare students for various types of jobs. Students gain practical experience at the college's sawmill and through a co-op or internship experience.

Types of Jobs: Lumber inspector, dry kiln operator, sawyer, trimmer-edger, lumber yard supervisor, quality control technician, log and lumber buyer or seller, wood products sales.

FIRST SEMESTER

			Credits
WPT	111	Wood Properties and Utilization	3
FOR	111	Dendrology (Tree & Shrub Identification)	3
FOR	113	Forest Mensuration	3
MTH	500	Technical Mathematics II	3
ENL	111	English Composition I	3
PED		Physical Education	1
			16

SECOND SEMESTER

			Credits
WPT	121	Lumber and Log Grading	3
WPT	122	Sawmilling I	3
WPT	123	Lumber Drying	3
MGT	110	Principles of Business	3
ENL	201	Technical Writing	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
WPT	231	Wood Industry Co-op/Internship	3
WPT	232	Sawmilling II	3
WPT	233	Quality Control	3
ACC	121	Elementary Accounting	
		or	3
ACC	112	Accounting I	
MKT	240	Marketing	3
			15

FOURTH SEMESTER

			Credits
WPT	243	Production Management	3
WPT	244	Equipment and Machinery	3
FOR	242	Forest Products	3
MGT	248	Supervision and Human Relations	3
		Elective	3
			15

Co-op Options:
Parallel
Summer

PROGRAM OBJECTIVES

The objective of the Wood Products Technology program is to prepare students for employment in the wood industry and related businesses and to improve the management capabilities of those who are presently employed in the wood industry.

A graduate should be able to:

1. identify the important commercial wood species and relate their wood properties to their potential uses.
2. identify selected species of trees and shrubs by their scientific and common names, general uses, site associations, and general distributions.
3. describe the processes involved in the breakdown of logs into various wood products.
4. grade hardwood and softwood logs and lumber to standard.
5. make recommendations concerning the replacement, addition, and upgrading of machinery and personnel.
6. identify the process of finding markets, methods of merchandising, distribution from manufacturer to consumer, and mark-up procedures.
7. evaluate the quality control of wood products at various stages of manufacturing.
8. apply on-the-job experience in the buying of logs, processing of wood, or marketing of wood products.
9. demonstrate familiarity with the types, operation, and basic maintenance of the more important machines used in wood processing.
10. demonstrate familiarity with the principles of cutting lumber to obtain the best grade.
11. demonstrate basic skills in the maintenance of sawmills.
12. demonstrate basic skills in the handling, stacking, and kiln and air drying of lumber.
13. apply knowledge of general business organization, planning, economics, financing, business law, worker's compensation, overhead determination, and profit and loss statements.
14. demonstrate the techniques needed for leadership and interpersonal relationships in a supervisory role.
15. understand the basic concepts, techniques, procedures, and principles of accounting and bookkeeping.
16. write accurate technical reports using proper language structure and demonstrate skill in basic oral communication.
17. solve basic arithmetic, algebraic, and trigonometric problems and apply skills in these areas in solving practical mathematical problems related to the wood products industry.
18. demonstrate fundamental skills in lifetime sports.

COLLEGE & UNIVERSITY TRANSFER PROGRAMS

General Studies

The Associate of Arts in General Studies is the degree usually completed by students who wish to transfer to a four-year institution offering the last two years of study toward a four-year degree. The Associate of Arts Degree allows considerable flexibility in course selection. Students are encouraged to select courses which can be transferred regardless of the field of concentration. It is strongly recommended that as soon as possible you identify the school to which you wish to transfer. You and your WACC advisor can then plan a program at WACC that will be within the broad outline of the specific four-year degree and school in which you are interested. Co-op options are available to students in General Studies programs.

OBJECTIVES

Upon completion of the General Studies Program the student will:

1. Have general knowledge in each of the following areas: Communications, Quantitative Concepts and Skills, Humanities, Social Sciences, Natural Sciences, and the building and maintenance of good health.

2. Have a comprehensive knowledge of one or more of the following areas: Communications, Quantitative Concepts and Skills, Humanities, Social Sciences, Natural Sciences.

3. Have the academic background essential for transfer into related baccalaureate degree programs.

4. Demonstrate the ability to reason logically, to analyze, synthesize, and evaluate information, and to apply mathematical reasoning processes and/or the scientific method.

5. Display open-mindedness and a willingness to appropriately modify performance or attitudes when faced with sufficient reason to do so.

6. Produce work that demonstrates ability to integrate various academic and practical experiences.

7. Display an awareness of our cultural traditions and a sensitivity toward the traditions of other cultures.

8. Display acceptable social values and attitudes in day-to-day activity, including productive citizenship and responsibility toward self and others.

9. Experience greater joy in living because of an increased awareness of social, cultural, and natural environments.

GRADUATION REQUIREMENTS

1. Successfully complete the general college graduation requirements for all Associate Degree Programs. (See pg. 119.)

2. Successfully complete a total of 64 credits of Associate Degree level course work (courses numbered 100 - 299) selected from the General Education Core areas (as defined below) and from health and physical education.

GENERAL EDUCATION CORE

Communications
English
Languages
Speech

Quantitative Concepts & Skills
Mathematics
Statistics

Humanities
Philosophy
History
Government

Social Sciences
Economics
Psychology
Sociology

Natural Sciences
Biology
Chemistry
Physics
Environmental Science
Geology
Geography

Appropriate associate degree courses offered outside the general education core may be substituted with the prior written approval of the student's advisor and Division Director.

3. Successfully complete a core of 25/26 Associate Degree level credits of general education which will include:

Communications	6 credits
Quantitative Concepts and Skills	6 credits
Humanities	3 credits
Social Science	3 credits
Natural Science (to include at least 3 hours of laboratory)	7-8 credits

4. Successfully complete 2 credits in health and 2 credits in physical education OR 4 credits in physical education. Part-time students may be exempt from this requirement.

5. Complete all placement testing required by the College. Students must demonstrate basic mastery of English, reading, and mathematics through placement testing or successful completion of appropriate courses designed to provide basic skills and competencies in these areas.

The General Studies Program Curriculum (GS)

To meet their individual needs, students may substitute for courses listed below upon recommendation of the student's academic advisor and approval by the appropriate Division Director. It is strongly recommended that as early as possible the student review the requirements of the particular program of the institution he/she plans to attend upon completing the General Studies program. Elective credits can then be selected to meet these requirements.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	101	Introduction to Mathematics I	
		or	3
MTH	103	College Algebra	
PED		Physical Education	1
		Humanities Elective	3
		*Natural Science Elective	3-4
		General Core Elective	3
			16-17

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	102	Introduction to Mathematics II	
		or	3
MTH	104	College Trigonometry	
PED		Physical Education	1
		Social Science Elective	3
		*Natural Science Elective	3-4
		General Core Elective	3
			16-17

THIRD SEMESTER

	Credits
**An elective program based on the student's major educational and vocational interests. Completion of Physical Education requirement.	
	16-18 Credits

FOURTH SEMESTER

**An elective program based on the student's major educational and vocational interests.	
	16-18 Credits

*To include at least one course with a 3 hour laboratory.

**Elective credits may come from any 100 or 200 level associate degree courses offered by the College. It is strongly recommended that the majority of these credits be taken within the General Education Core discipline areas to assure maximal transferability and congruence with the requirements of most baccalaureate institutions. Courses selected from outside the General Education Core need the approval of the student's advisor and Division Director.

Curriculum Guides

Students who contemplate professional or semi-professional preparation in the arts and sciences may initiate their undergraduate studies at WACC. Since most students who undertake such a program at the College plan to transfer to four-year institutions to complete the requirements for the baccalaureate degree, they are advised to schedule courses that meet the requirements of the institution to which transfer is desired. The student is reminded that his/her success in transferring to a particular college will largely depend on the quality of academic achievement at WACC.

Curriculum guides for recommended associate degree programs in career areas requiring education beyond an associate degree are shown below. These include career areas with:

1. Business Administration Emphasis
2. Communications Emphasis
3. Education Emphasis
4. Math-Science Emphasis
5. Pre-Law Emphasis
6. Pre-Medical Emphasis
7. Pre-Theological Emphasis
8. Social Work Emphasis

The typical programs suggested are *recommendations, not requirements.* They indicate particular course selections within the guidelines of the General Studies Program.

Business Administration Emphasis

This program is designed to provide the first two years of instruction for students who wish to transfer to a four-year institution and obtain their baccalaureate degree in Business Administration. Students entering this curriculum should evidence a strong desire, aptitude, and motivation toward business. Career possibilities for students who complete a four-year program include accounting, economics, finance, foreign commerce, economic geography, industrial management, personnel management, insurance, marketing, and real estate.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	103	College Algebra	3
HIS	111	Western Civilization I	
		or	3
HIS	231	United States-Survey I	
MGT	110	Principles of Business	3
PED		Physical Education	1
		General Core Elective	3
			16

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	201	Elementary Statistics	3
HIS	121	Western Civilization II	
		or	3
HIS	241	United States-Survey II	
ECO	201	Principles of Economics	3
PED		Physical Education	1
		General Core Elective	3
			16

THIRD SEMESTER

			Credits
ENL	202	Fundamentals of Speech	3
ACC	112	Accounting I	3
MGT	231	Business Law I	3
PSY	111	General Psychology	3
PED		Physical Education	1
		Natural Science Elective	3-4
			16-17

FOURTH SEMESTER

			Credits
ACC	122	Accounting II	3
MGT	241	Business Law II	3
CSC	118	Fundamentals of Computer Science	3
PED		Physical Education	1
		General Core Elective	3
		Natural Science Elective	3-4
			16-17

Communications Emphasis

The program is designed to provide the first two years of instruction for students planning careers in some aspect of communications. Career possibilities include: advertising, broadcasting, free-lance writing, journalism, and public relations. The intent of this program is not to prepare students for immediate employment upon graduation. Its purpose is to allow students to explore various career areas in mass communications while completing course work designed for transfer to a four-year college or university.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
JOU	111	News Writing	3
JOU	113	Principles of News Photography	3
MTH	101	Introduction to Mathematics I	3
PED		Physical Education	1
		General Core Elective	3
			16

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
BRC	123	News Writing for Radio	3
PSY	111	General Psychology	3
MTH	102	Introduction to Mathematics II	3
HIS	111	Western Civilization I	3
PED		Physical Education	1
			16

THIRD SEMESTER

			Credits
ENL	235	Creative Writing	3
JOU	231	Feature Writing	3
SOC	111	Introduction to Sociology	3
PED		Physical Education	1
		General Core Elective	3
		Natural Science Elective	3-4
			16-17

FOURTH SEMESTER

			Credits
ENL	201	Technical Writing	3
ENL	202	Fundamentals of Speech	3
ADV	101	Principles of Advertising	3
PED		Physical Education	1
		General Core Elective	3
		Natural Science Elective	3-4
			16-17

Education Emphasis

The Education Emphasis provides the student with a program of studies typical of that found in the first two years of a four-year professional education curriculum. The student thus has the opportunity to complete many of the general education courses and to become familiar with education as a career. The student who enrolls in this program is generally expected to continue toward a baccalaureate degree after graduation. However, the student who is interested in an educational role as a paraprofessional may find employment in certain types of positions following completion of the program.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
EDU	111	Introduction to Education	3
PSY	111	General Psychology	3
MTH	101	Introduction to Mathematics I	
		or	3
MTH	103	College Algebra	
PED		Physical Education	1
		General Core Elective	3
			16

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
ECO	201	Principles of Economics	3
SOC	121	Introduction to Social Work	3
MTH	102	Introduction to Mathematics II	
		or	3
MTH	104	College Trigonometry	
PED		Physical Education	1
		General Core Elective	3
			16

THIRD SEMESTER

			Credits
MTH	201	Elementary Statistics	3
EDU	121	Children's & Young Adult Literature	3
HIS	111	Western Civilization I	3
PED		Physical Education	1
		General Core Elective	3
		Natural Science Elective	3-4
			16-17

FOURTH SEMESTER

			Credits
ENL	202	Fundamentals of Speech	3
PSY	231	Educational Psychology	3
HIS	121	Western Civilization II	3
PED		Physical Education	1
		General Core Elective	3
		Natural Science Elective	3-4
			16-17

Math-Science Emphasis

Students with a strong background in mathematics and science have many opportunities in such fields as engineering, research, actuarial science, time-study analysis, economics, as well as such careers as mathematical or scientific technicians in business, industry, and government. Students entering this curricular emphasis area should evidence aptitude and motivation toward mathematics and science.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	103	College Algebra	
		or	3-4
MTH	238	Calculus I	
HIS	111	Western Civilization I	
		or	3
HIS	231	United States-Survey I	
		Laboratory Science (Biology, Chemistry, Physics, or Geology)	4
ECO	201	Principles of Economics	3
PED		Physical Education	1
			17-18

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	104	College Trigonometry	
		or	3-4
MTH	248	Calculus II	
HIS	121	Western Civilization II	
		or	3
HIS	241	United States-Survey II	
		Laboratory Science (Biology, Chemistry, Physics, or Geology)	4
PED		Physical Education	1
		General Core Elective	3
			17-18

THIRD SEMESTER

			Credits
		Literature or Sociology	3
MTH	201	Elementary Statistics	3
		Laboratory Science (Biology, Chemistry, Physics, or Geology)	4
		Computer Science	3
PED		Physical Education	1
		General Core Elective	3
			17

FOURTH SEMESTER

			Credits
		Literature or Sociology	3
MTH	204	Matrix Algebra	3
		Laboratory Science (Biology, Chemistry, Physics, or Geology)	4
		Computer Science	3
PED		Physical Education	1
		General Core Elective	3
			17

Pre-Law Emphasis

The student who plans to enter law school should structure a program which includes a broad base of liberal studies. The Association of American Law Schools has drawn up a statement that it believes describes the best type of pre-legal training. While the statement does not specify exact courses, it does emphasize three areas to be developed:

1. Comprehension and expression in words
2. Critical understanding of human institutions and values
3. Creative power in thinking

In an attempt to aid the student in the acquisition of these skills, the following program is suggested. Modifications in this program to meet particular student needs should be planned in conjunction with the pre-law advisor.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	103	College Algebra	
		or	3-4
MTH	238	Calculus I	
HIS	111	Western Civilization I	3
PSY	111	General Psychology	3
PED		Physical Education	1
		General Core Elective	3
			16-17

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	104	College Trigonometry	
		or	3-4
MTH	248	Calculus II	
HIS	121	Western Civilization II	3
SOC	111	Introduction to Sociology	3
PED		Physical Education	1
		General Core Elective	3
			16-17

THIRD SEMESTER

			Credits
ENL	202	Fundamentals of Speech	3
ACC	112	Principles of Accounting I	3
PHL	111	Introduction to Philosophical Analysis	3
GOV	231	American Government-National	3
PED		Physical Education	1
		Natural Science Elective	3-4
			16-17

FOURTH SEMESTER

			Credits
ECO	201	Principles of Economics	3
ACC	122	Principles of Accounting II	3
PHL	121	Ethics and Political Analysis	3
GOV	241	State and Local Government	3
PED		Physical Education	1
		Natural Science Elective	3-4
			16-17

Pre-Medical Emphasis

The Pre-Medical Emphasis curriculum will provide preparation for such professions and careers as medicine, pharmacy, dentistry, optometry, veterinary medicine, chiropractic, other health professions, and scientific research. Students seeking to transfer credits toward the baccalaureate degree and whose major interests center on chemistry, physics, biology, and associated disciplines should pursue this curriculum. Because of the rigorous and time-consuming nature of the medical programs, which include much training in clinical laboratories and patient-related experiences, students should evidence aptitude and motivation toward mathematics and science, with special emphasis on laboratory experience and manual dexterity.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	103	College Algebra	
		or	3-4
MTH	238	Calculus I	
HIS	111	Western Civilization I	
		or	3
HIS	231	United States-Survey I	
BIO	113	General Biology I	4
CHM	111	General Chemistry I	4
			17-18

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	104	College Trigonometry	
		or	3-4
MTH	248	Calculus II	
PSY	111	General Psychology	3
BIO	123	General Biology II	4
CHM	121	General Chemistry II	4
PED		Physical Education	1
			18-19

THIRD SEMESTER

			Credits
		Literature or Sociology	3
PHS	116	General Physics I	4
BIO	115	Human Anatomy & Physiology I	4
PED		Physical Education	1
		General Core Electives	3-6
			15-18

FOURTH SEMESTER

			Credits
		Literature or Sociology	3
PHS	126	General Physics II	4
BIO	125	Human Anatomy & Physiology II	4
BIO	201	Microbiology	4
PED	201	Personal & Community Health	2
			17

Pre-Theological Emphasis

This program is designed to provide the first two years of instruction for students planning careers in religious education, the missionary field, or the ministry. It is developed from the recommendations set forth by the Association of Theological Schools. They advise that such programs have a broad base of liberal studies, complemented by a major in either the humanities or the social sciences.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
MTH	101	Introduction to Mathematics I	
		or	3
MTH	103	College Algebra	
PSY	111	General Psychology	3
HIS	111	Western Civilization I	3
PED		Physical Education	1
		General Core Elective	3
			16

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
MTH	102	Introduction to Mathematics II	
		or	3
MTH	104	College Trigonometry	
SOC	111	Introduction to Sociology	3
HIS	111	Western Civilization II	3
PED		Physical Education	1
		General Core Elective	3
			16

THIRD SEMESTER

			Credits
ENL	202	Fundamentals of Speech	3
PHL	111	Introduction to Philosophical Analysis	3
SOC	231	Marriage & the Family	3
PED		Physical Education	1
		Social Science Elective	3
		Natural Science Elective	3-4
			16-17

FOURTH SEMESTER

			Credits
ECO	201	Principles of Economics	3
PHL	121	Ethics and Political Philosophy	3
PSY	203	Developmental Psychology	3
PED		Physical Education	1
		Social Science Elective	3
		Natural Science Elective	3-4
			16-17

Social Work Emphasis

The Social Work Emphasis provides the student with preparation for various careers in the human services. With an Associate Degree, the student may find employment as a paraprofessional in such diverse fields as child care, gerontology, mental health, mental retardation, or social work. Or, students may continue study toward a baccalaureate degree at a four-year college or university. All courses in this program are designed to provide the student with both entry-level career skills and college transfer credit.

FIRST SEMESTER

			Credits
ENL	111	English Composition I	3
SOC	111	Introduction to Sociology	3
MTH	101	Introduction to Mathematics I	
		or	3
MTH	103	College Algebra	
PSY	111	General Psychology	3
PED		Physical Education	1
		General Core Elective	3
			16

SECOND SEMESTER

			Credits
ENL	121	English Composition II	3
SOC	121	Introduction to Social Work	3
MTH	102	Introduction to Mathematics II	
		or	3
MTH	104	College Trigonometry	
PSY	201	Abnormal Psychology	3
PED		Physical Education	1
		General Core Elective	3
			16

THIRD SEMESTER

			Credits
SOC	231	Marriage and the Family	3
MTH	201	Elementary Statistics	3
PSY	203	Developmental Psychology	3
PED		Physical Education	1
		Humanities Elective	3
		Natural Science Elective	3-4
			16-17

FOURTH SEMESTER

			Credits
SOC	241	Urban Sociology	
		or	3
SOC	242	Criminology	
ECO	201	Principles of Economics	3
PED		Physical Education	1
		Internship Option or Social Science Elective	3
		General Core Elective	3
		Natural Science Elective	3-4
			16-17

INDIVIDUAL STUDIES PROGRAM

The Individual Studies program is designed to give maximum flexibility in planning a course of study. A student who is unsure of his/her goals, is interested in personal enrichment, wishes to explore a very specialized technical career, or has other goals which do not fit any of the prescribed programs offered by the College, may wish to enroll in the Individual Studies program. Co-op is available for students in the Individual Studies program.

OBJECTIVES

Upon completion of the Individual Studies Program the student will have achieved one or more of the following:

1. An awareness of his/her academic and manual skills, careers for which to prepare, and/or careers which are unsuitable.
2. Comprehensive knowledge of a subject of personal interest.
3. Technical skill in an area(s) of his/her own choosing as well as general knowledge of academic subjects for which a need is felt.
4. Entry-level job skills in a paraprofessional or technical area.
5. Completion of courses which are equivalent to those of a four-year program into which he/she intends to transfer.

GRADUATION REQUIREMENTS

1. Successfully complete the general college graduation requirements for all Associate Degree Programs. (See pg. 119.)
2. Successfully complete a minimum of sixty (60) credit hours of Associate Degree level courses:
   a. The 60 credit hours must include 12 credits of General Education Core courses as specified below:

Communications	6 credits
Quantitative Concepts & Skills	3 credits
Humanities OR Social Sciences OR Natural Science	3-4 credits

   b. Full-time students must complete four additional credits of Physical Education, bringing the total number of required credits to 64; part-time students may be exempted from this requirement.
3. Complete all placement testing required by the College. Students must demonstrate basic mastery of English, reading, and mathematics through placement testing or successful completion of appropriate courses designed to provide basic skills and competencies in these areas.
4. The student must have participated in a planned educational program of studies. This plan should be developed in conjunction with an advisor and be filed with the appropriate Division Director prior to the completion of eighteen (18) semester hours of credit.

CURRICULUM POSSIBILITIES

Courses selected for inclusion in an individual studies program depend almost entirely upon the goal of the individual student. In consultation with an advisor, the student may select precisely those courses which best meet his/her needs and allow him/her to reach a chosen goal. However, it may take longer than two years for an individual to complete the courses desired because of scheduling conflicts. This is particularly true for laboratory or shop courses requiring large blocks of time.

AN EXAMPLE OF A PLANNED INDIVIDUAL STUDIES PROGRAM

A person may wish to enroll in the Individual Studies program to prepare for a particular occupational specialty not regularly offered. For instance, a person who enjoys flower arranging and cooking might decide to develop their own business utilizing their skills. Some form of specialized catering, for example wedding catering, would be a possibility. Courses could be selected from areas of Food and Hospitality Management, Floriculture, Business, and related areas. One possible selection of 64 credits of course work follows:

Food and Hospitality Management
Quantity Food Preparation
Menu Planning & Cost Control
Purchasing, Storage & Sanitation
Hospitality Merchandising
Equipment & Layouts
Personnel Management, Work Simplification

Floriculture
Floral Design I
Floral Design II
Flower Shop Operation

Business
Principles of Business
Business Communications
Accounting I
Accounting II
Small Business Management
Business Mathematics

Related
Introduction to Mathematics I
English Composition I
English Composition II
Fundamentals of Chemistry
Physical Education

Another student with this same career goal might choose to emphasize one area more than another depending on interest and prior experience. For example, someone who had prepared food for many large parties in their own home might feel quite competent in the food area and wish to emphasize business courses. The exact combination of courses in the individual studies program is decided entirely by the individual, with the help of an advisor.

Exam Preparation

Engineer In Training (EIT) Exam Preparation

The Engineer in Training Program is a non-degree, non-certificate program. The purpose of the program is to prepare individuals, through a series of courses, to take the EIT examination. The EIT exam is one step in the process of being registered as a professional engineer in the State of Pennsylvania. These courses are open to anyone who desires to take the examination. Courses offered are:

Course Title	Course Number
STATICS	EIT 201
STRENGTH OF MATERIALS I	EIT 202
DYNAMICS	EIT 203
FLUID MECHANICS	EIT 204
STRENGTH OF MATERIALS II	EIT 205
ENGINEERING ECONOMICS	EIT 206
ENGINEERING CHEMISTRY	EIT 207
THERMODYNAMICS	EIT 208
ENGINEERING PHYSICS	EIT 209
ENGINEERING ELECTRONICS	EIT 210

Real Estate

All real estate courses offered by the Business and Computer Science Division are listed below. The list also shows the courses which can be applied to the State Real Estate Commission's requirements for a salesperson's license or broker's license.

Course Title	Course No.	Cr.	License for Salesperson	License for Broker
Real Estate Fundamentals	RES 112	3	X	X
Real Estate Law	RES 113	3		X
Real Estate Appraisal	RES 114	3		X
Real Estate Practice	RES 115	3	X	X
Real Estate Financing	RES 116	3		X
Real Estate Management	RES 117	3		X
Real Estate Principles	RES 212	3		X
Real Estate Math	RES 119	3		X
Real Estate Taxes	RES 120	3		X

All real estate salesperson applicants will be required to take two (2) standardized real estate courses to qualify for the salesperson's examination. These courses will be entitled "Real Estate Fundamentals" and "Real Estate Practice".

To take the test for a broker's license the student needs 16 credits in real estate.

Lewisburg Federal Penitentiary

Heating and Air Conditioning (HA)
Special Certificate Program
Lewisburg Federal Penitentiary

The Heating and Air Conditioning program will instruct students in the skills necessary to design, install, and repair any type of residential or light commercial heating and air conditioning system.

Types of Jobs: Heating and air conditioning technician; service and repair person; equipment sales; owner and operator of business.

FALL SEMESTER

			Credits
HAC	711	Heating and Air Conditioning I	22
MTH	710	Technical Mathematics I	3
			25

SPRING SEMESTER

			Credits
HAC	721	Heating and Air Conditioning II	22
ENL	711	Communications	3
			25

SUMMER SEMESTER

			Credits
HAC	731	Heating and Air Conditioning III	22
			22

PROGRAM OBJECTIVES

The graduate of the Heating and Air Conditioning program should be able to:

1. service and repair all types of air conditioning and heating systems.
2. troubleshoot, identify, and correct problems in heating and air conditioning systems.
3. install complete residential or light commercial heating and/or air conditioning systems.
4. perform necessary repairs to heat pumps and solar equipment.
5. design and prepare heating and cooling load calculations, and properly select required equipment for installation.
6. use elementary math operations (addition, subtraction, multiplication, division) including decimals, fractions, and conversions as they apply to heating and air conditioning.
7. write technical reports, repair orders, estimates, purchase orders, and clear concise business letters. Maintain inventory, service records, and customer files.
8. demonstrate an attitude of responsibility toward installation, service, and repair of heating and air conditioning systems and a desire to enter the world of work.

Small Engine Repair (SE)
Special Certificate Program
Lewisburg Federal Penitentiary

The goal of this program is to prepare students for successful careers as small engine mechanics for lawn mowers, marine, or snowmobile dealerships, or for self-operated businesses.

Types of Jobs: Small engine mechanic, shop management, factory training advisor, sales, owner/operator of repair shop.

COURSES

			Credits
SER	711	Small Engine Repair	14
ENL	711	Communications	3
MTH	710	Technical Mathematics I	3
			20

PROGRAM OBJECTIVES

The graduate of the Small Engine Repair program should be able to:

1. write clear, concise, legible, and accurate repair orders, estimates, memos, reports, resumes, and letters of application.
2. maintain service records and customer files.
3. identify the problems of a small engine repair shop, equipment, tools, and customer relations.
4. diagnose common small engine problems and make necessary repairs.
5. disassemble and reassemble various makes of small engines.
6. use elementary math operations (addition, subtraction, multiplication, division), including decimals, fractions, and conversions as they apply to small engine repair.
7. demonstrate an attitude of responsibility toward small engine repair and the world of work.

Courses

COURSE DESCRIPTIONS

Courses are listed alphabetically under the name of the subject– Accounting, Advertising, Advertising Art, Agribusiness, Architectural Technology, Automotive, Aviation, Biology, etc.

The letters and numbers preceding the names of the courses are an identification code for recording purposes. Courses are designated by numbers as follows:

Courses Numbered	Description
001 - 099	Developmental courses which may be required of students on the basis of placement tests. The College awards institutional credit for these courses. This credit will appear on the student's transcript and count in the Cumulative Grade Point Average. However, credits earned in courses numbered 001-099 may not replace any courses or electives required in a given program.
100 - 299	College-level courses applicable to Associate Degree programs.
500 - 699	Courses are applicable to Associate Degree and Certificate programs, with the exception of the General Studies program.
700 - 899	Courses applicable to Certificate programs.

If a particular course has a prerequisite or corequisite, that fact is indicated in italics at the end of the course description.

The number immediately following the description of the course content indicates the number of credits received for the course. Within the parentheses, the number before the dash indicates lecture hours and the number after the dash indicates laboratory or shop hours.

SPECIAL TOPICS COURSES: (1-5 credits)

BTT	299	BUILDING TECHNOLOGIES
BCS	299	BUSINESS & COMPUTER SCIENCE
CHS	299	COMMUNICATIONS, HUMANITIES & SOCIAL SCIENCES
ESD	299	EARTH SCIENCE
EED	299	ELECTRIC/ELECTRONICS
EDT	299	ENGINEERING & DESIGN TECHNOLOGIES
MSH	299	MATHEMATICS, SCIENCE & ALLIED HEALTH
TTD	299	TRANSPORTATION TECHNOLOGIES

COURSE DESCRIPTION

Special attention to particular abilities, interests of students,and particular topics. Individual guidance in advanced studies. Admission by permission of the instructor, Division Director, and Dean of Academic Affairs.

A

ACCOUNTING (ACC)

ACC 112
ACCOUNTING I
Introduction to elementary accounting principles. Includes the procedures, terms, theories, and practical applications of proprietorship accounting. Develops the foundation of accounting principles necessary for success in advanced courses and helps prepare the student for employment in business. 3 Cr. (3-0).

ACC 121
ELEMENTARY ACCOUNTING
Basic course in accounting for students majoring in Secretarial Science and non-business areas. Develops those accounting practices and theories which will prepare the student for employment in, or operation of, a sole proprietorship form of business. 3 Cr. (3-0).

ACC 122
ACCOUNTING II
Continues the development of accounting principles as applied to the different forms of business organization. Emphasizes corporate and partnership accounting. 3 Cr. (3-0). *Prerequisite: ACC 112 or Division permission.*

ACC 125
INCOME TAX ACCOUNTING
Familiarizes students with the different rules and regulations regarding Federal and Pennsylvania state income taxes. Tax deductions, credits, exemptions, rates, computation of all types of taxes, and the various forms that students should be familiar with are stressed. 3 Cr. (3-0).

ACC 230
MANAGERIAL ACCOUNTING
Presents the analysis tools needed to make decisions based on financial information. Emphasizes the organization of data for decisions, development of sound measurements, and the use of accounting for control and evaluation of economic activity. De-emphasizes the use of financial accounting using the transaction recording process. Course assumes the student has a thorough knowledge of accounting principles and is prepared to analyze the financial summarizations. 3 Cr. (3-0). *Prerequisite: ACC 122 or Division permission.*

ACC 231
COST ACCOUNTING
Includes transactions of a manufacturing business, finding unit costs, finding total cost after processing, and profit through distribution. Three types of cost accounting systems will be discussed in detail: Job Cost, Process Cost, and Standard Cost. 3 Cr. (3-0).
Prerequisite: ACC 122 or Division permission.

ACC 232
INTERMEDIATE ACCOUNTING I
Detailed in-depth study of financial statements and the fundamental accounting processes. Includes an examination of working capital. 3 Cr. (3-0). *Prerequisite: ACC 122 or Division permission.*

ACC 244
INTERMEDIATE ACCOUNTING II
Deals with noncurrent assets and liabilities, stockholders' equity, and various analytical accounting processes. 3 Cr. (3-0).
Prerequisite: ACC 232 or Division permission.

ACC 246
AUDITING
Offers a thorough knowledge of auditing through the application of principles and adherence to auditing standards. Internal controls, the field of auditing and public accounting, audit techniques, audit work papers, verification of accounts, reporting the audit and internal auditing are discussed. 3 Cr. (3-0). *Prerequisites: ACC 112, ACC 122.*

ADVERTISING (ADV)

ADV 101
PRINCIPLES OF ADVERTISING
Survey spanning the historical perspective of American advertising and advertising in relation to the economy. Organization and management of advertising; its place in total marketing as well as retail and national advertising; sociological aspects; creative production. 3 Cr. (3-0).

ADVERTISING ART (ART)

ART 111
BASIC DRAWING
The basic concepts of observing and perceiving objects in space and drawing them in various ways using a variety of techniques.
3 Cr. (1-6).

ART 121
BASIC PAINTING
An introduction to painting with emphasis on color, value, form, texture. Emphasis is placed on representational painting but experimentation is encouraged. 3 Cr. (1-6).

ART 231
COLOR AND DESIGN
Introduction to two dimensional design and color. Studies from nature and the properties of color, shape, form and space leading to the discovery of individual solutions to problems in two dimensional design. 3 Cr. (1-6).

ART 232
LETTERING AND LAYOUT
A study of the elements and design of layouts for advertising art. The history, anatomy and design of letters, emphasizing the proper use of lettering in advertising. 3 Cr. (1-6).

ART 233
INTRODUCTION TO ART
A basic course emphasizing the study and understanding of the visual forms of art, painting, sculpture and architecture. Includes functions of design, techniques of execution, and basic principles concerning the visual arts. Also covers the study of major periods of art, Egyptian, Greco-Roman, Medieval, Renaissance and Baroque to the nineteenth and twentieth century. 3 Cr. (3-0).

ART 241
MEDIA AND TECHNIQUES
Lecture and demonstrations illustrate and describe the various media and techniques used in advertising art, such as gouache, watercolor, wash, pastel, pen and ink, scratchboard, airbrush and art aids.
3 Cr. (1-6). *Prerequisite: Consultation with instructor.*

ART 242
ADVERTISING DESIGN
Projects in poster design, brochures, illustration and other forms of advertising and editorial media including basic techniques and processes in use in preparation of advertising and graphic art for the printer. The following skills are involved: illustration, paste-up, specifying type, overlays, lettering, and layout.
3 Cr. (1-6). *Prerequisite: Consultation with instructor.*

AGRIBUSINESS (AGB)

AGB 111
INTRODUCTION TO AGRICULTURAL BUSINESS
An overview of the broad field of agribusiness, its operation, specialized areas, and their functions. Numerous field trips will be made to different types of agribusinesses and ferms to provide the student with a first hand view of the industry to help him/her become oriented in the career goals of his/her choice. In addition, the student will develop a planned agribusiness internship/co-op experience.
4 Cr. (3-3).

AGB 112
SOILS, FERTILIZER, AND AGRICULTURAL CHEMICALS
The formation, physical, and biological properties of soil with special attention to soil conditions that affect crop production. Composition of fertilizer, its manufacture and use, including soil sampling, test report analysis, plant deficiencies, and the reactions of nutrients within plants. Types of chemicals and how to use and apply them properly.
4 Cr. (3-3).

AGB 123
FIELD AND FORAGE CROP PRODUCTION
A study of the basic principles related to the culture and production of grain crops and forage. 3 Cr. (2-3).

AGB 124
AGRICULTURAL FINANCING
The principles of financing applied to agribusiness. A look at the many sources of credit—private and governmental. Obtaining credit and its use. 3 Cr. (3-0).

AGB 125
DAIRY PRODUCTION
The feeding, management, breeding, milking, disease control, and housing of dairy cattle. 3 Cr. (2-3).

AGB 236
ANIMAL PRODUCTION
The basic practical management aspects of livestock production including beef, swine, sheep, and poultry. 4 Cr. (3-3).

AGB 237
SPECIAL TOPICS IN AGRIBUSINESS
Investigation and study individually and by the class in special topics related to the objectives of the Agribusiness program. Examples of topics: Conservation, Horticulture, and Forestry. 3 Cr. (2-3).

AGB 240
INTERNSHIP/CO-OP
Practical experience gained by a planned and supervised program of work with an agricultural business or farming enterprise. 3 Cr. 200 Hrs.

AGB 248
FARM MANAGEMENT
The fundamental principles of management and economics emphasizing their application to the farm. Farm records, their analysis and use in determining progress and farm planning. 3 Cr. (3-0).

AGB 249
AGRICULTURAL SALES AND SERVICE
An introduction to the factors involved in marketing, including the psychology of selling, pricing, and presenting the product. Supply and demand, new concepts in marketing, the relationship of customer service to growth. 3 Cr. (3-0).

AIR CONDITIONING AND REFRIGERATION (ACR)

ACR 231
THEORY AND OPERATION OF AIR CONDITIONING AND HEATING SYSTEMS
An advanced course in the design of all air systems, air and water systems, all water systems, central and room air conditioners and heat pumps. Schematic drawings will be required of these various systems, plus operating conditions, pressure, temperature, etc. Instruction will be provided in the sizing of duct and proper duct design as recommended by ASHRA. 4 Cr. (3-3).
Prerequisites: ACR 521, ACR 522.

ACR 232
INSTALLATION AND SERVICE PROBLEMS—AIR CONDITIONING
Proper methods of installation of air conditioning equipment; proper design and sizing of ducts to assure proper air flow; installation of duct systems. Electrical and electrical component failure, including refrigeration breakdown are thoroughly explored. 5 Cr. (3-6).
Prerequisites: ACR 521, ACR 522. Corequisite: ACR 231.

ACR 241
AIR MOVEMENT AND VENTILATION
Identification and normal application of each type is covered. Methods of disassembly and reassembly of evaporative coolers; exhaust fans; insulation as a thermal blanket and as soundproofing. 4 Cr. (3-3).
Prerequisite: PHS 500.

ACR 242
SOLAR HEAT/ENERGY CONSERVATION
Methods of delivering heat gain to an area, primarily with solar heat collector panels; methods of heat transfer for space heating and domestic hot water heating. This course will cover the latest scientific and research energy conservation data available. 3 Cr. (2-3).

ACR 250
AIR CONDITIONING/REFRIGERATION WORK EXPERIENCE
Planned, supervised work experience in the air conditioning/ refrigeration field. Students must submit a written report and are evaluated by employer and coordinator. All supervision should be through the employer. 1 Cr. 80 Hrs.

ACR 511
INTRODUCTION TO REFRIGERATION
Lectures, demonstrations, and lab assignments introduce concepts of basic refrigeration. Emphasis placed on the mechanical refrigeration system, including condenser, evaporators, compressor, refrigerant control devices, refrigerants, test equipment and service techniques. 5 Cr. (3-6).

ACR 521
COMMERCIAL REFRIGERATION SYSTEMS
Various types of installations are studied, including characteristics of items to be cooled in relationship to temperature, humidity, and air circulation. Techniques involved in system balance, capacity, and use of heat load charts are presented. 4 Cr. (3-3).
Prerequisites: ACR 511, ELT 531. Corequisite: ELT 541.

ACR 522
INSTALLATION AND SERVICE PROBLEMS—COMMERCIAL REFRIGERATION
Various types of installation procedures and service techniques used in commercial refrigeration, including piping design, codes, preventive maintenance, and system accessories. 4 Cr. (3-3).
Prerequisite: ACR 511. Corequisites: ELT 541, ACR 521.

ARCHITECTURAL TECHNOLOGY (ARC)

ARC 102
BASIC ARCHITECTURAL DRAFTING
Fundamentals of architectural drawing for woodworking technology; use and care of drawing instruments and media, lettering, orthographic projection principles, preliminary drawing and sketching, preparation of working drawings, exterior and interior finish work, detailing cabinet and mill work. 3 Cr. (2-3).

ARC 111
STATICS
Algebraic and graphic determination of loads, reactions, shear and moment, deflection, loading and buckling, truss design, properties of areas. 3 Cr. (3-0).

ARC 112
ARCHITECTURAL GRAPHICS I
Basic architectural graphic media; projection drawings, axonometrics and perspective; color and texture; introduction to the architectural model; basic vocabulary of architectural drawings; composition, space, form, value, texture, shades, shadows. 4 Cr. (1-9).

ARC 115
WORKING DRAWINGS - RESIDENTIAL
Laboratory practice and theory in producing residential architectural working drawings; emphasis on preparation, technique, content, thoroughness, continuity, lettering, presentation, quality. 3 Cr. (1-6).

ARC 116
BUILDING MATERIALS I
A study of the typical materials of building construction, their production, properties, use and performance in various combinations and methods of construction. 2 Cr. (2-0).

ARC 121
STRUCTURES - WOOD
Theory and design of wood and timber; identification, characteristics and classifications of wood; working stresses; design and beams, columns, joints, rafters, planks, laminated sections; timber connections, fastenings and their working properties; laminated lumber shapes. 2 Cr. (2-0).

ARC 122
ARCHITECTURAL GRAPHICS II
Architectural rendering in various media; black and white, color problems; emphasis on development of techniques, style, presentation. 3 Cr. (1-6).

ARC 125
WORKING DRAWINGS - COMMERCIAL
Laboratory practice and theory in producing non-residential architectural working drawings; continued emphasis will be placed on preparation technique, content, lettering, line quality, and presentation quality. 3 Cr. (1-6).

ARC 232
BUILDING MATERIALS II
Subsurface exploration and foundations, water and damp-proofing; methods and materials for construction of masonry, concrete walls, slabs; wall, floor, and roof systems; the curtain wall; fireproofing; building codes; architectural hardware. 3 Cr. (3-0).
Prerequisite: ARC 116.

ARC 233
BUILDING EQUIPMENT I
Theory and design of plumbing, heating, air-conditioning, and control systems; sources and design of water supply; sanitary and storm systems; computation of plumbing, heating, and cooling loads. 3 Cr. (3-0).

ARC 236
DESIGN STUDIO I
Introduction to the fundamental relationships of space, function, and the environmental needs of people. Application of principles and methods in design problem-solving, involving function identification, data collection, site analysis, and programming. Development of visual and graphic skills and techniques. 5 Cr. (2-9).

ARC 237
SEMINAR IN ARCHITECTURAL HISTORY
The course presents an overview of Western art with emphasis on architecture from Egypt to the international style. The course places special importance on 19th and 20th century architects and their work. 5 Cr. (5-0).

ARC 238
STRUCTURES - STEEL
The theory and design of structural components in steel: beams, columns, connections, joists, and trusses. A study of the factors involved in the choice of a structural framing system in Architecture and the use of the AISC Manual. 3 Cr. (3-0).

ARC 242
BUILDING EQUIPMENT II
Theory and design of electrical service distribution systems; selection of electrical equipment, fixtures; electrical heating design; theory and measurement of light, sound; vertical transportation systems; sound systems. 3 Cr. (3-0).

ARC 244
PROFESSIONAL ADMINISTRATION AND CONTRACT DOCUMENTS
Architectural registration, professional organization, ethics; forms of architectural service; contract law; bonds, liens; codes; insurance; bidding procedures; estimating; specification writing; supervision and administration of construction. 3 Cr. (3-0).

ARC 246
DESIGN STUDIO II
The application of environmental systems, their analysis and integration in the design process. Further implementation of design theory and methodologies, into a creative design project with other architectural issues such as site analysis and planning, programming and program analysis of more complex problems. 6 Cr. (2-12).

ARC 247
STRUCTURES - CONCRETE
The theory and design of reinforced concrete members: beams, columns, slabs, footings, retaining walls. A study of structural framing systems as used in reinforced concrete buildings. 3 Cr. (3-0).

AUTOMOTIVE (ABC, AMC, AMD)

ABC 713
BASIC AUTO BODY (8 weeks)
Basic theory and practice in trade fundamentals; body and chassis components; sanding; masking. 7 Cr. (8-16).

ABC 714
METAL WORK (8 weeks)
Metal work; gas welding; stretching and shrinking of metal; fasteners; riveting. 7 Cr. (8-16).

ABC 723
AUTO BODY MAINTENANCE (8 weeks)
Exterior and interior cleaning, water and air leaks, rattles, trim work. 7 Cr. (8-16). *Prerequisites: ABC 713, ABC 714.*

ABC 724
PANEL ALIGNMENT (8 weeks)
Panel alignment; front and rear suspension alignment, frame alignment. 7 Cr. (8-16). *Prerequisite: ABC 723.*

ABC 833
METAL WORK AND FILLING (8 weeks)
Straightening, panel fabrication, panel replacement; use of fillers. 7 Cr. (8-16). *Prerequisite: ABC 713, ABC 714, ABC 723, ABC 724.*

ABC 834
PAINTING (8 weeks)
Surface preparation, paint application, paint problems, paint equipment. 7 Cr. (8-16). *Prerequisite: ABC 833.*

ABC 843
TOOLS, EQUIPMENT AND COLLISION REPAIRS (8 weeks)
Frame gauges, frame clamps, hydraulic equipment, hand tools and power tools. 7 Cr. (8-16). *Prerequisites: ABC 713, ABC 714, ABC 723, ABC 724, ABC 833, ABC 834.*

ABC 844
PAINTING AND ESTIMATING (8 weeks)
Collision damage, damage appraisal, repair procedures and techniques. 7 Cr. (8-16). *Prerequisite: ABC 843.*

AMC 715
POWER TRAIN - STANDARD (8 weeks)
Theory of operation of standard transmissions, clutches, differentials. Rebuild procedures of selected standard transmissions, differentials, and trans axles. Minor service on universal joints and rear axles. Introduction to automatic transmissions. 7 Cr. (8-16).

AMC 716
BRAKES AND SUSPENSION (8 weeks)
Theory of hydraulics, braking action, suspension systems, wheel alignment, and balance. Steering gears and geometry. Diagnosis and repair procedures for brake and suspension systems. 7 Cr. (8-16).

AMC 725
ELECTRIC AND FUEL (8 weeks)
Basic theory of electricity. Operation and service of ignition, charging, cranking, and lighting circuits. Use of electronic testing equipment, operation and service of emission control systems, and fuel system components. 8 Cr. (11-13).

AMC 726
BASIC ENGINES (8 weeks)
Theory of internal combustion heat engines. Engine service procedures. Fundamentals of tune-up. Cooling system service. Introduction to air conditioning. 7 Cr. (8-16).

AMC 844
VEHICLE PERFORMANCE ANALYSIS
Diagnosis of engine problems and selected repairs. Exhaust emission diagnosis, adjustment, and selected repairs. Troubleshooting common electrical malfunctions. Wheel alignment and balance. 13 Cr. (7-18). *Prerequisites: AMC 715, AMC 716, AMC 725, AMC 726.*

AMD 113
FUEL AND ELECTRICAL (8 weeks)
Basic theory of electricity. Operation and service of ignition, charging, and lighting circuits. Use of electronic testing equipment, operation and service of emission control systems, and fuel system components. 5 Cr. (6-12).

AMD 114
ENGINES (8 weeks)
Theory of internal combustion heat engines. Engine service procedures. Fundamentals of tune-up and cooling system service. Introduction to air conditioning. 5 Cr. (6-12).

AMD 123
STANDARD POWER TRAIN (8 weeks)
Theory of operation of standard transmissions, clutches, differentials. Rebuild procedures of selected standard transmissions, differentials, and trans axles. Minor service of universal joints, rear axles. Introduction to automatic transmissions. 5 Cr. (6-12).

AMD 124
BRAKES, CHASSIS, AND SUSPENSION (8 weeks)
Theory of hydraulics, braking action, suspension systems, wheel alignment, and balance. Steering gears and geometry. Diagnosis and repair procedures for brake and suspension systems. 5 Cr. (6-12).

AMD 232
SERVICE PROCEDURES
Engine performance analysis, diagnosis of engine problems, and selected repair. Exhaust emission diagnosis, adjustment, and selected repairs. Troubleshooting common electrical malfunctions. Wheel alignment and balance. Service management techniques. 11 Cr. (5-18). *Prerequisites: AMD 113, AMD 114, AMD 123, AMD 124.*

AMD 634
STATE INSPECTION REPAIRS (8 weeks)
Study of State Inspection Code Manual. (Demonstrations and application of checking procedures to actual work, and emphasis on repair procedures.) Minor service of power train. 6 Cr. (7-15). *Prerequisites: AMD 113, AMD 114, AMD 123, AMD 124 or AMC 715, AMC 716, AMC 725, AMC 726.*

AMD 635
AUTOMATIC TRANSMISSION REPAIR (8 weeks)
Automatic transmission diagnosis, linkage adjustment, and rebuild procedures on selected automatic transmissions. 6 Cr. (7-15). *Prerequisites: AMD 113, AMD 114, AMD 123, AMD 124 or AMC 715, AMC 716, AMC 725, AMC 726.*

AMD 636
AIR CONDITIONING (8 weeks)
Air conditioning service. Theory, operation, diagnosis, and repair of selected air conditioning units as applied to automotive vehicles. 6 Cr. (7-15). *Prerequisites: AMD 113, AMD 114, AMD 123, AMD 124 or AMC 715, AMC 716, AMC 725, AMC 726.*

AMD 637
ENGINE OVERHAUL (8 weeks)
Fundamentals of engines, with emphasis on diagnosis and repair techniques. Basic service and repair procedures as applied to engine overhaul. 6 Cr. (7-15). *Prerequisites: AMD 113, AMD 114, AMD 123, AMD 124 or AMC 715, AMC 716, AMC 725, AMC 726.*

AVIATION (APC)

Lecture and lab hours are shown per semester, not per week.

APC 711
GENERAL AIRFRAME AND POWERPLANT
Basic concepts of aircraft, powerplant, aircraft systems maintenance; aircraft, powerplant nomenclature; theory of operation, weight, balance; blueprint reading; mechanics privileges, limitations; publications, aircraft forms. 13 Cr. (159-169).

APC 712
POWERPLANT I
Basic theory and operating principles of aircraft gas turbine engines. 3 Cr. (35-45).

APC 721
POWERPLANT II
Basic operating principles and theories of aircraft reciprocating engines, fuel metering systems, engine fuel system, aircraft propellers, ignition and exhaust systems. Maintenance, inspection, and troubleshooting techniques of the above mentioned systems are also included in the course. 17 Cr. (176-304).
Prerequisites: APC 711, APC 712.

APC 831
POWERPLANT III
Basic theories and operating principles of aircraft engine lubrication, cooling, instrument, fire protection, and electrical systems. Maintenance, inspection and troubleshooting techniques of the above mentioned systems are also included in the course. 9 Cr. (119-91). *Prerequisites: APC 711, APC 712, APC 721.*

APC 832
AIRFRAME I
Basic operating principles and theories of aircraft airframe construction and repairs, as applicable to electrical systems, aircraft fabrics and refinishing, rigging and assembly, welding and inspection of the airframe. 10 Cr. (108-162). *Prerequisites: APC 711, APC 712, APC 721, APC 831.*

APC 841
AIRFRAME II
Basic operating principles and theories of aircraft airframe construction and repairs as applicable to wood and sheet metal structure, instrument, hydraulics, pneumatics, landing gear, fuel, navigation, air conditioning, pressurization and fire protection systems. 20 Cr. (229-251). *Prerequisites: APC 711, APC 712, APC 721, APC 831, APC 832.*

B

BIOLOGY (BIO)

BIO 110
APPLIED HUMAN PHYSIOLOGY
Study of human physiology and anatomy, cells, tissues, and tumors, digestive, excretory, cardiovascular, endocrine, and other body systems as time permits; diseases and immunology. 3 Cr. (3-0).

BIO 111
BASIC BOTANY (HORTICULTURE)
Fundamentals of plant science, plant anatomy, physiology, taxonomy, reproduction, and genetics. 3 Cr. (2-3).

BIO 113
GENERAL BIOLOGY I
Fundamental processes of living organisms. Main concepts of biology beginning with considerations of the chemical basis of life. Structure, function, and evolution of cells. 4 Cr. (3-3).

BIO 115
HUMAN ANATOMY AND PHYSIOLOGY I
A medically oriented study of the structure and function of the human body. Intended for students specializing in nursing, medical technology, and biology. Lecture and laboratory. 4 Cr. (3-3).

BIO 121
BASIC ANATOMY AND PHYSIOLOGY
Study of human anatomy and physiology; cells, tissues, and tumors; nervous, excretory, reproductive and endocrine systems; diseases; principles of chemistry; microbiology; and physics. Designed for students needing a one course basic background in anatomy and physiology (e.g., Secretarial Science—Medical) 3 Cr. (3-0).

BIO 123
GENERAL BIOLOGY II
Continuation of BIO 113. Structure, function, interrelationships, and evolution of organisms. 4 Cr. (3-3). *Prerequisite: BIO 113 or permission of the instructor.*

BIO 125
HUMAN ANATOMY AND PHYSIOLOGY II
Continuation of BIO 115. 4 Cr. (3-3). *Prerequisite: BIO 115.*

BIO 201
MICROBIOLOGY
Biology of microorganisms including bacteria, rickettsiae, viruses, fungi, protozoa, and helminths. Relationships between microorganisms and higher forms of life. 4 Cr. (3-3). *Prerequisite: BIO 123.*

BIO 203
GENERAL BOTANY
Introduction to plant physiology, plant life cycles, and plant taxonomy. 4 Cr. (3-3). *Prerequisite: BIO 123.*

BIO 208
ECOLOGY
Includes the basic principles of the relationships of plants and animals to their environments. Physical factors, energy and chemical cycles in the ecosystem, population and community characteristics, ecological succession, aquatic and terrestrial ecology. Local terrestrial and aquatic environments. 4 Cr. (3-3). *Prerequisite: One semester of college level biology.*

BIO 290
SPECIAL STUDIES IN BIOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. (1-3, laboratory as required).

BROADCASTING (BRC)

BRC 110
INTRODUCTION TO BROADCASTING
In-depth study of broadcasting industry, its personnel, its history, its current status and its future. The student will explore his/her own potential position in industry by brief hands-on previews of functions performed in various broadcast station positions. 3 Cr. (3-0).

BRC 115
TECHNICAL COMMERCIAL RADIO OPERATION
A broad survey of basic electronic theory prepares the student to understand the functions of broadcasting equipment. Equipment is demonstrated. Legal responsibilities required by FCC relating to equipment operation are explained. 3 Cr. (3-0).

BRC 123
NEWS WRITING FOR RADIO
Fundamentals of English grammar are reviewed. News gathering and writing are practiced. The unique peculiarities of electronic news writing are demonstrated and practiced. 3 Cr. (3-0).

BRC 125
INTRODUCTION TO RADIO STATION OPERATION
The student, as a member of the class, will operate the WACC radio station. He/she must announce and may perform other functions also, such as business or administrative. 3 Cr. (1-6).

BRC 233
ANNOUNCING TECHNIQUES
Human communications is examined. American General Speech is demonstrated and practiced. Forms of announcing are evaluated and practiced including: general, news, commercial, sports, interviewing, music, and talk shows. 3 Cr. (3-0).

BRC 235
RADIO STATION OPERATION AND MANAGEMENT
Continuation of BRC 125, hands-on operation of College station by students. Increased practice in business, sales, production and administration is mandated. Students required to perform functions. 3 Cr. (1-6). *Prerequisite: BRC 125.*

BRC 241
SURVEY OF RADIO INDUSTRY
History of radio, as background, is appraised. Philosophical concepts of American and foreign broadcasting are evaluated. U.S. governmental regulations are demonstrated. Current practices in industry are shown as they evolved and were used. 2 Cr. (2-0).

BRC 242
COMMUNITY ASPECTS OF BROADCASTING
Broadcast facilities as forms of community life, over and above entertainment, information, or business, are demonstrated. The operation of the facility as an integrated part of community life is practiced. The student's place in this community picture is evaluated. Individual employment possibilities are literally implemented. 3 Cr. (3-0).

BUSINESS MANAGEMENT (MGT)

MGT 110
PRINCIPLES OF BUSINESS
Introduction to the various types of business organizations, from a legal as well as administrative viewpoint. Emphasizes terminology as it is applied in business fields such as economics, finance, marketing, and business law. Includes basic concepts of management from the establishment of objectives through planning, organizing, policy formulation, taking action, measuring and evaluating, and performance improvement. 3 Cr. (3-0).

MGT 111
BUSINESS MATHEMATICS
Fundamentals of mathematics as applied to addition, subtraction, multiplication, and division; the use of percent, interest, depreciation and installment buying as used in the modern business world. 3 Cr. (3-0).

MGT 125
FINANCE
Introduction to basic principles of finance. Includes the monetary and credit system, long and short-term business financing, agricultural, consumer, and international financing. Examines the background of early monetary standards and the weaknesses of the various systems. 3 Cr. (3-0).

MGT 230
BUSINESS COMMUNICATIONS
Application of communications skills; listening, reading, writing, and speaking accurately, briefly, and clearly. Students are trained to write all types of business communications. Includes the techniques of personal and interpersonal relationships that will enable the student to perform well and to advance in a career. 3 Cr. (3-0).

MGT 231
BUSINESS LAW I
Introduction to the judicial process, the social implications of law, the roles of government and labor unions in the formulation of business laws. In-depth study of rights and obligations as they apply to contract law. 3 Cr. (3-0).

MGT 235
BUSINESS PSYCHOLOGY
Psychological principles as applied to modern business. Encourages the proper attitudes toward work, toward people, and toward personal habits that will make the student aware of human relation skills needed to be an efficient employee and an effective leader, both on and off the job. 3 Cr. (3-0).

MGT 237
BANKING AND INVESTMENTS
Introduction to banking and investments. Explains how institutions can best meet the needs of society. Provides a foundation for understanding how banks operate today, and why and how they have evolved to their present state. 3 Cr. (3-0).

MGT 238
INSURANCE
Structure and practices of the insurance field. Various types of insurance policies and their uses and importance for personal and business success are stressed. 3 Cr. (3-0).

MGT 241
BUSINESS LAW II
Incorporates the objectives of Business Law I and provides an in-depth study of the laws of agency and employment relation, commercial paper, personal property, bailments, and sales.
3 Cr. (3-0). *Prerequisite: MGT 231.*

MGT 242
RETAILING
Familiarizes the student with the field of retailing. Provides the technical and theoretical knowledge necessary for retail management employment. 3 Cr. (3-0).

MGT 243
SALES
Examines the positive role personal selling plays in the U.S. economy and documents the extent to which selling has aided our economic growth. Designed to show the role of sales in helping customers recognize and satisfy wants and needs. 3 Cr. (3-0).

MGT 247
SMALL BUSINESS MANAGEMENT
Introduction to the problems of owning and operating a business of one's own. Necessary personal characteristics, problems involved in buying and initiating a new business, and the activities of management are covered. 3 Cr. (3-0).

MGT 248
SUPERVISION AND HUMAN RELATIONS
Duties and responsibilities of the first-line supervisor and manager who holds up to a middle-level management position are studied from a behavioral point of view and in relation to how he/she influences others to accomplish organizational goals. Includes motivation, job enrichment; rules of leadership, and interpersonal relationships. 3 Cr. (3-0). *Prerequisite: MGT 110 or Division permission.*

C

CARPENTRY (BCT & CNC)

BCT 111
WOODWORKING FOR CARPENTERS
Basic principles and skills of hand and machine woodworking operations; special projects. 4 Cr. (2-6).

BCT 112
CONSTRUCTION CARPENTRY
Basic principles of frame construction: foundations and concrete formwork, types of building frames, strength of beams and girders, structural sheathing and house details; ideas and trends in construction methods and techniques. 4 Cr. (2-6).

BCT 121
ESTIMATING AND BLUEPRINTS
Introduction; types of drawings; lines, marks, symbols, conventions, scales, dimensions; quantities of material and cost estimating. 2 Cr. (2-0).

BCT 122
BLOCK CONSTRUCTION
Block laying skills in lab; practical work; classroom instruction covering materials used, types and sizes of blocks, principles of cost estimation. 6 Cr. (2-12).

BCT 231
ROOF-FRAMING THEORY
Principles of rafter layout, use of framing square, problems of roof framing and construction, types of roofs and rafters. 3 Cr. (3-0).

BCT 232
BRICK CONSTRUCTION
Laying various patterns of brick to meet industrial standards with speed and accuracy; following architect's drawings; chimney, fireplace and wall projects. 5 Cr. (2-9).

BCT 241
ADVANCED CARPENTRY
Advanced woodworking techniques and fundamentals of finished carpentry; modern finishing materials; methods of application; exterior and interior trim; millwork, cornice work, roofing, siding, frame for openings, interior wall and ceiling material; trim and moldings; built-in cabinet work; stairbuilding; school sponsored construction work. 4 Cr. (2-6).

BCT 242
BUILDING CONSTRUCTION TECHNOLOGY
Advanced technical aspects of building construction, solution of practical problems; special advanced projects, campus construction work including house construction projects. 6 Cr. (3-9).

BCT 243
CONCRETE CONSTRUCTION
Principles of concrete design, water-cement ratio, proportions of ingredients, reinforced concrete, study of concrete footers and walls, finishing with hand and power trowel equipment, proper methods of curing and testing. 3 Cr. (2-3).

CNC 711
SURVEYING, LAYOUT & BLUEPRINT READING (8 weeks)
Interpretation of building codes, specifications, and blueprints; types and erection of batter boards; use, care and operation of builders level, simple surveys, 3-4-5 triangle calculations; determination of depth of excavation. 2 Cr. (3-3).

CNC 712
CONCRETE AND BLOCK (8 weeks)
Study and application of methods and materials used in laying out and building block and concrete walls; principles used in forming, pouring and finishing concrete footings, reinforced concrete and concrete slabs. Appropriate tools are introduced and instruction in their proper use and care is offered. 4 Cr. (3-16).

CNC 713
BRICK AND STONE (8 weeks)
Study of brick and stone products currently used in construction, with emphasis on common methods within the shop, and, when possible, through permanent projects outside the shop. 6 Cr. (6-19).

CNC 721
FRAMING AND SHEATHING (8 weeks)
Principles and applications of framing and sheathing through shop and outside projects. Emphasizes new and traditional materials used in this phase of construction. 6 Cr. (6-19).

CNC 722
EXTERIOR FINISH (8 weeks)
Develops skills in the selection and use of siding and roofing materials. Offers experience in door and window framing, exterior trim, cornice work, insulation materials and methods. 6 Cr. (6-19).

CNC 831
INTERIOR FINISH (8 weeks)
Instruction in the selection and application of materials used for interior walls, ceilings and floors. Opportunity for the student to use these materials, and the tools associated with them, through shop and permanent installations. 6 Cr. (6-16).

CNC 832
INTERIOR TRIM (8 weeks)
Presents a broad area of building construction, including door hanging, moldings and trim, built-in features, stair building and kitchen cabinets. Offers the student a wide range of information and, when possible, provides experience in the use of the methods and materials studied. 6 Cr. (6-16).

CNC 833
BLUEPRINTS AND SPECIFICATIONS
Develops techniques in reading and interpretation of blueprints and specifications. Instruction in reading plan views, elevations, and details as typical of working drawings. Reviews the math principles involved in understanding and using these drawings. Stresses specifications and their relationship to the working drawings. 3 Cr. (3-0).
Prerequisites: CNC 712, CNC 713, CNC 721, CNC 722.

CNC 841
SPECIALTY AND RELATED TRADES (8 weeks)
Surveys specialty and related trade areas, from wall and floor coverings through fundamental electrical wiring and plumbing and heating. Instruction and practical experience. 4 Cr. (3-16).

CNC 842
PRACTICAL CONSTRUCTION EXPERIENCE (8 weeks)
Utilization of the knowledge and skills acquired in the construction curriculum. Supervised permanent projects on and around campus are used as an instructional vehicle. When practical, the student participates in all stages of the project from planning through construction. 4 Cr. (1-18).

CNC 843
BUILDING TRADES ESTIMATING (8 weeks)
Study of processes and procedures gives working knowledge of various trades and shows how realistic construction costs are obtained for completed projects. Includes both residential and commercial estimating with the emphasis on types of estimates and quantity take-offs. 3 Cr. (6-0). *Prerequisite: CNC 833.*

CNC 844
PERSONAL AND JOB ORIENTATION (8 weeks)
Introduction to practical techniques in self-evaluation stressing the importance of values, interests, personality, and attitude in determining work success. Emphasis on establishing realistic work goals and expectations based on the student's self-knowledge. Surveys problems the beginning worker faces preparing to take his/her place in the world of work. Methods and techniques of gaining and maintaining employment are discussed in detail. 3 Cr. (6-0).

CHEMISTRY (CHM)

CHM 100
FUNDAMENTALS OF CHEMISTRY
Introductory treatment of basic concepts of inorganic and organic chemistry. Essentially non-mathematical. Intended for the student who has never had chemistry or whose background is very weak. Prepares the student for CHM 105 or CHM 111. 4 Cr. (3-3).

CHM 105
GENERAL ORGANIC CHEMISTRY
Basic introduction to the major classes of organic compounds, including brief review of some inorganic concepts as related to organic reactions. Intended for non-science students desiring to fulfill a lab science requirement and for science students as a preliminary introduction to CHM 203. 4 Cr. (3-3). *Prerequisites: High school chemistry or permission of the instructor.*

CHM 107
GENERAL ORGANIC CHEMISTRY
Basic introduction to the major classes of organic compounds, including brief review of some inorganic concepts as related to organic reactions. 3 Cr. (3-0). Cannot be used to satisfy lab science requirements. *Prerequisites: High school chemistry or permission of the instructor.*

CHM 111
GENERAL CHEMISTRY I
Principles of modern chemistry with emphasis on inorganic aspects. Intended for science majors and non-science students desiring to fulfill lab science requirement. Prepares the student to continue into CHM 121 or CHM 203. 4 Cr. (3-3). *Prerequisites: High school algebra or equivalent; high school chemistry desirable but not required.*

CHM 121
GENERAL CHEMISTRY II
Continuation of CHM 111. Intended for science majors and non-science students desiring to fulfill a lab science requirement; the latter may desire to elect CHM 105 instead. 4 Cr. (3-3). *Prerequisites: CHM 111 or high school chemistry with permission of the instructor.*

CHM 203
ORGANIC CHEMISTRY I
Study of the major classes of organic compounds with emphasis on molecular structure and reaction mechanisms. Intended for science majors. 4 Cr. (3-3). *Prerequisites: CHM 105, or CHM 111, or high school chemistry with permission of the instructor.*

CHM 204
ORGANIC CHEMISTRY II
Continuation of CHM 203. 4 Cr. (3-3). *Prerequisites: CHM 203 or equivalent.*

CHM 290
SPECIAL TOPICS IN CHEMISTRY
A flexible course intended to meet special needs or interests of science or non-science students. Lectures may be supplemented with lab work as needed. 1 to 4 Cr. *Prerequisite: Permission of the instructor.*

CIVIL ENGINEERING TECHNOLOGY (CET)

CET 111
MATERIALS OF CONSTRUCTION
Properties of concrete, aggregates, asphalt, steel, wood, plastics, clay products and miscellaneous construction materials; methods of testing and sampling construction materials; application of data on materials to design of structure. 2 Cr. (2-0).

CET 112
ENGINEERING DRAWING
Use of instruments; lettering, geometric constructions; orthographic projection; dimensioning; sketching. Architectural drawing including plans, elevations, details, and site plans. Structural drawing including uses and detailing for wood, concrete, and steel structures. 3 Cr. (1-6).

CET 113
INTRODUCTORY SURVEYING
Introduction to surveying; use and care of instruments; simple surveys with compass, transit, level, and tape. 2 Cr. (1-3).

CET 121
PLANE SURVEYING
Theory and practice of plane surveying; traverses and elementary triangulation; differential and reciprocal leveling; stadia and construction surveys; plane table surveys. 4 Cr. (1-9).
Prerequisites: CET 113, MTH 103; Corequisite: MTH 104.

CET 122
TOPOGRAPHIC DRAWING & CARTOGRAPHY
Use of conventional signs in mapping, the construction of large-scale topographic maps, logical contouring, photographic interpretation. Methods of plotting, use and construction of small scale maps, earth's coordinate system, map projections, enlargement and reduction of maps, scribing techniques, photographic color separation, typography, reproduction, and processing. 3 Cr. (1-6). *Prerequisite: CET 112.*

CET 231
ROUTE SURVEYING
Highway curves (horizontal and vertical); plus and offset; X-sections; field astronomy; route location. 4 Cr. (1-9). *Prerequisites: CET 121, MTH 104.*

CET 232
ORIGIN, DISTRIBUTION & BEHAVIOR OF SOILS
Geologic origin of soils; minerals, rocks, rock structures, weathering, glaciation, erosion and deposition. Distribution of soils in North America; residual, glacial and water-wind deposited soils. Soil characteristics and behavior; engineering classification, volume-weight relationships, physical properties, supporting capabilities for foundation elements and sampling methods. 3 Cr. (2-3). *Prerequisite: MTH 104; Corequisite: PHS 100.*

CET 233
STATICS
Basic principles of statics; coplanar and non-coplanar force systems; friction; centroids and moments of inertia; hydrostatic pressures and loads. 3 Cr. (3-1). *Prerequisite: MTH 104.*

CET 234
HIGHWAY ENGINEERING TECHNOLOGY
Highway economy, highway characteristics, drainage and structures, super-elevation, roadway construction, concrete-mix design, hydrology (precipitation and run-off), mass diagram, contracts and specifications. 3 Cr. (3-0). *Corequisite: CET 231.*

CET 241
ADVANCED SURVEYING
Theory and practice of boundary surveys; city surveys; mine surveys; hydrographic surveys and steam gaging; bridge surveys; survey control, and state coordinate systems; public land surveys; precise leveling and triangulation. 3 Cr. (2-3). *Prerequisite: CET 231.*

CET 242
FLUID MECHANICS
Mechanics of fluids; fluid flow in conduits and around bodies; liquid flow in open channels; friction and energy loss; fluid measurements; similitude and dimensional analysis. 3 Cr. (2-3). *Prerequisites: PHS 100, CET 233.*

CET 243
STRENGTH OF MATERIALS
Engineering materials and properties; shear and moments in beams; stresses in beams; design of beams; deflection of beams; columns. 3 Cr. (3-0). *Prerequisite: CET 233.*

CET 244
PHOTOGRAMMETRY
Use and application of aerial photographs; mapping by photogrammetric methods; geometry of aerial photographs; stereoscopy; overlapping aerial photographs; aerial triangulation; flight planning; cost estimation; contracts and specifications; remote sensing. 3 Cr. (2-3). *Prerequisites: CET 122, MTH 104.*

COMPUTER OPERATOR (COP)

COP 713
COMPUTER OPERATIONS I
This course is designed as an introduction to the operation of equipment found in computer installations. Topics include mounting tapes and disc packs, operating CRT's, line printers, console typewriters, card readers, keypunch machines, data recorders, card sorters, other unit record devices, forms handling equipment, electronic calculators, and duplicating machines. 6 Cr. (3-9).

COP 723
COMPUTER OPERATIONS II
This course is designed to train the student in both the non-physical and physical aspects of data processing operations. An emphasis is placed on software operations, the use of EDP manuals, and the actual functioning of a computer center. Other topics are features of computer hardware, disc and tape processing, and recovery techniques for hardware and software errors. 4 Cr. (3-3). *Prerequisite: COP 713.*

COP 724
COMPUTER OPERATIONS INTERNSHIP
This course is designed to provide the student with practical experience in computer operations by assignment to a computer installation. The student will receive on-the-job training in the WACC computer center and/or various industrial locations. 2 Cr. (0-6). *Prerequisite: COP 713.*

COMPUTER SCIENCE (CSC)

CSC 100
FORTRAN IV PROGRAMMING
Concepts of data processing systems, methods and applications; programming languages and program structures; FORTRAN IV programming language problem analysis, flow-charting and computer solution of numerical and non-numerical problems. 3 Cr. (3-0).

CSC 118
FUNDAMENTALS OF COMPUTER SCIENCE
Introduction to the field of computer science. Specific topics covered include communication with a computer through use of a Cathode Ray Tube, punch card equipment, records and files, concepts of computer systems, logic and problem solving techniques, flowcharts, data representation, and an overview of selected programming languages with an emphasis on BASIC Programming Language. 3 Cr. (3-0).

CSC 119
RPG PROGRAMMING I
Beginning course in REPORT PROGRAM GENERATOR Programming. Includes writing, compiling, and executing RPG programs. The programs written for this course will be based on business applications and business-oriented problems. 3 Cr. (3-0).

CSC 120
BUSINESS COMPUTER APPLICATIONS
This course emphasizes the use of the computer in typical business applications by concentrating on the use of computer-based information systems to provide information for effective management decision making. Includes data base concepts, data entry, man-machine interaction, and data retrieval concepts. 3 Cr. (3-0). *Prerequisite: CSC 118.*

CSC 127
ASSEMBLER LANGUAGE PROGRAMMING
A beginning course in basic assembler language. Includes such topics as data representation, instructions, coding, problem analysis, flowcharting, program writing, execution, debugging, documentation, job control and operating systems. 4 Cr. (4-0). *Prerequisite: CSC 118.*

CSC 128
COBOL PROGRAMMING I
Covers the COBOL computer language, language elements and division, program writing, execution, diagnostics, advanced programming concepts and techniques. Stresses documentation, including a written problem statement, any required formula development, printer spacing chart layouts with appropriate terminology for programming, card/tape and/or disc record layout, internal memory requirements, and a program flowchart. 3 Cr. (3-0). *Prerequisite: CSC 118.*

CSC 234
FORTRAN AND LINEAR PROGRAMMING
Designed to introduce the student to FORTRAN language programming as applied to business and mathematics problems. Topics include subprograms, table handling, linear programming, use of the plotter to draw graphs, and utilization of magnetic tape and disc. 3 Cr. (3-0).
Prerequisites: CSC 118 and a programming language.

CSC 237
ADVANCED ASSEMBLER PROGRAMMING
A continuation of CSC 127. Covers data manipulation; tape, disc, and floating/point operations; macro definitions and statements; analyzing and programming problems for business and scientific applications. 3 Cr. (3-0). *Prerequisite: CSC 127.*

CSC 238
COBOL PROGRAMMING II
Introduction to structures used to represent the logical relationship between elements of information and to the techniques used to operate on information structures using tape and disc storage. The student examines how a complex computer programming task can be subdivided for maximum clarity, efficiency, and ease of maintenance and modification. The concept of programming style permeates most of the material presented. Careful verification of program operation and documentation of programs are emphasized. 3 Cr.(3-0).
Prerequisite: CSC 128.

CSC 241
SYSTEMS ANALYSIS AND DESIGN
Study in the systematic approach for the analysis, design, development and implementation of a computerized business system; system life cycle; system investigation; problem definition; input, output designs; record file designs, system structures; documentation; independent and/or team development of an assigned system problem. 4 Cr. (4-0). *Prerequisites: CSC 118 and a programming language.*

CSC 242
BASIC LANGUAGE PROGRAMMING
Covers the BASIC programming language in detail, adding to and developing the concepts presented in CSC 118. Detailed discussion of the BASIC language including operating procedures of a time-sharing computer system. Interactive programming techniques will be stressed through such topics as data conversion, string functions, sequential I/O, virtual I/O, and record I/O. Programming techniques will be discussed. The course is geared to business data processing. A special project may be required. 3 Cr. (3-0). *Prerequisite: CSC 118.*

CSC 245
COMPUTER SOFTWARE SYSTEMS
Provides a working view of hardware/software configurations as integrated systems. The student is introduced to execution software,multiprogramming and operation software. Utility routines and file systems are investigated. Basic components of file and communication systems will be presented and analyzed. The functioning of these systems as integral components of an information system are stressed. 3 Cr. (3-0). *Prerequisites: CSC 118 and a programming language.*

CSC 246
PL/1 PROGRAMMING
Introduces the student to the PL/1 programming language as applied to business/mathematics problems, programming techniques and procedures. 3 Cr. (3-0). *Prerequisites: CSC 128 and CSC 234.*

CSC 247
INTERNSHIP IN COMPUTER SYSTEMS
Supervised on-the-job training or an individual research project in computer science. The student will be assigned to a faculty member from the division who will either place the student at a local industrial data processing installation for on-the-job training or help the student select a research topic. 3 Cr. (0-9).
Prerequisite: Two semesters of computer science.

CSC 249
RPG PROGRAMMING II
An advanced course in REPORT PROGRAM GENERATOR programming. Includes writing, compiling, and executing programs. Programs written for this course will include such topics as table lookup, sequential disc files, indexed-sequential disc files, and matching records. 3 Cr. (3-0). *Prerequisite: CSC 119.*

COOPERATIVE EDUCATION (CED)

If co-op is taken in addition to the courses normally required for completion of their program of study, students will register for co-op experience using the numbers below. If co-op experience is elected in place of the course(s) within a curriculum, the student will register for the course(s) to be replaced using the course identification number followed by the letter "C". Example: ABC 833C Metal Work and Filling. This will indicate that the student is seeking credit for ABC 833 through participating in a co-op experience.

CED 101
COOPERATIVE EDUCATION I
Designed for the associate degree or certificate student wishing to participate in a related educational work experience as an elective. The student will be placed with an approved employer in a job integrating the skills and knowledge of his or her program. Variable 1-6 Cr.

CED 102
COOPERATIVE EDUCATION II
Designed for the associate degree or certificate student who has successfully completed CED 101 and wishes to participate in a second program of related educational work experience with the same or a new employer. Variable 1-6 Cr.

CED 103
COOPERATIVE EDUCATION III
This course is designed to assist the cooperative education student through the transition from college to the "world of work". A series of seminars will emphasize the acquisition of job application skills, adjustment to the work environment, and the development of sound interpersonal relationships. A portion of the course will be devoted to methods of reporting the day-to-day and total experiences gained while on the job. CED 103 may be required for co-op students prior to the initial job placement. No credit.

D

DENTAL HYGIENE (DHG)

DHG 100
INTRODUCTION TO DENTAL HYGIENE
An introduction to fundamental concepts and techniques of primary preventive measures. Use and care of dental equipment is included. 4 Cr. (2-6).

DHG 115
ORAL ANATOMY AND HISTOLOGY
Study of the development and structure of the oral and facial regions with emphasis on dental anatomy. 3 Cr. (3-0).

DHG 120
ORAL RADIOLOGY
Principles, techniques, and interpretation of intra-oral and extra-oral radiographs. The importance of accuracy and the safe use of radiation in the dental office is stressed. 2 Cr. (1-3).
Prerequisites: DHG 115, DHG 100.

DHG 121
DENTAL MATERIALS
Principles and manipulation of the physical, mechanical and chemical properties of dental materials. 2 Cr. (1-3).
Prerequisites: DHG 100, DHG 115, CHM 107.

DHG 123
PERIODONTICS I
A self-paced programmed course with instructional units consisting of tapes, slides and manuals. The study of normal and healthy periodontium and the biological and clinical basis for the future understanding of periodontal disease is covered. The pathology of the periodontium, including types, causes and prevention are studied. 1 Cr. (0-3). *Prerequisite: DHG 100, DHG 115.*

DHG 124
CLINICAL DENTAL HYGIENE I
Lectures are integrated with practical experience in the clinic. Students begin to provide preventive oral health services. 4 Cr. (1-9).
Prerequisites: DHG 100, DHG 115.

DHG 230
CLINICAL DENTAL HYGIENE II
Students continue with experience in the techniques of performing complete patient services. Additional emphasis is placed on advanced procedures. Special topics such as root planing and curettage, oral photography, pulp testing, ultrasonic scalers, etc., are introduced and integrated with clinical experience. 5 Cr. (1-12). *Prerequisites: DHG 124, DHG 120, DHG 123, DHG 121.*

DHG 236
PERIODONTICS II
A study of clinical diagnosis and treatment of periodontal disease. The importance of periodontal therapy and the role of the dental hygienist is stressed. 1 Cr. (1-0). *Prerequisites: DHG 124, DHG 120, DHG 123, DHG 121.*

DHG 237
PHARMACOLOGY AND EMERGENCIES
A study of properties, dosage, actions, and reactions of drugs stressing those related to dentistry. Principles of first aid and emergency treatment are included. 3 Cr. (3-0).
Prerequisites: DHG 120, DHG 121, DHG 123, DHG 124, CHM 107.

DHG 239
GENERAL AND ORAL PATHOLOGY
Study of general and oral disease with emphasis on those diseases and anomalies related to the oral cavity. 2 Cr. (2-0).
Prerequisites: DHG 120, DHG 121, DHG 123, DHG 124, BIO 125, BIO 201.

DHG 241
COMMUNITY DENTAL HEALTH
Philosophy of community dental health. Techniques of teaching preventive dental health to groups, floridation, special dental health programs, use of statistical materials. Through rotating assignments students will have the opportunity to participate and observe in a variety of dental settings. 2 Cr. (2-0).
Prerequisites: DHG 230, DHG 236, DHG 237, DHG 239, DHG 243.

DHG 242
CLINICAL DENTAL HYGIENE III
Increased experience and proficiency in dental hygiene techniques. 4 Cr. (0-12). *Prerequisites: DHG 230, DHG 236, DHG 237, DHG 239, DHG 243.*

DHG 243
DENTAL SPECIALTIES
Discussion of pedodontics, endodontics, oral surgery, operative dentistry, combined with practice in expanded functions. 3 Cr. (2-3).
Prerequisites: DHG 120, DHG 121, DHG 123, DHG 124.

DHG 244
DENTAL PRACTICE ORIENTATION
Ethics and jurisprudence, office procedures and management. Review for licensing examinations. 2 Cr. (2-0).
Prerequisites: DHG 230, DHG 236, DHG 237, DHG 239, DHG 243.

DEVELOPMENTAL STUDIES (CHD, ENL, MTH, RDG)

CHD 100
VALUE CLARIFICATION AND DECISION MAKING (8 weeks)
This course is designed to enhance a student's self understanding as well as to provide a "skills" orientation toward coping with life problems. The basic tenets of the course recognize that many of the skills, techniques, and strategies that individuals use in various life situations can be adapted and are almost universally applied in other kinds of life difficulties. The course attempts to show students that a "life plan" is complete only when one considers all aspects of the human condition as important. 1 Elective Cr. (1.5-1.5).

CHD 101
CAREER EXPLORATION (8 weeks)
Specific steps in the career decision making process will be taught. Students will explore the world of work as it relates to their values, interests and abilities. The course will be a step by step process culminating in teaching students how to make career decisions. 1 Elective Cr. (1.5-1.5).

ENL 011
BASIC ENGLISH
This course emphasizes writing skills: organization, structure, content, style, and mechanics. Individualized instruction, instructor control of the writing process, limited class size, and personalization of grammar instruction are characteristic of the course. 3 Institutional Cr. (3-0).

MTH 001
ARITHMETIC
Comprehension of the basic concepts and skills of arithmetic to prepare students for required mathematics courses. Pre and post-tests are used to prescribe and insure mastery of units covered.
3 Institutional Cr. (3-0).

MTH 002
BASIC ALGEBRA
Basic skills and concepts of arithmetic and algebra are presented according to the learner's aptitudes and needs. Pre and post-tests are used to prescribe and insure mastery of units covered. The course may require more than one semester for mastery of the objectives.
3 Institutional Cr. (3-0).

RDG 010
READING IMPROVEMENT
Basic reading improvement for students with limited success in previous reading performance. Differences in ability and background will determine areas each student will pursue. Emphasis on comprehension, vocabulary, speed, spelling and taking notes from textbook assignments. Audio tapes, reading machines, individualized materials, and handout sheets are available to encourage individual learning. 3 Institutional Cr. (3-0).

RDG 099
INDEPENDENT STUDY
A course of study designed to meet the specific needs of students who need individualized and personalized assistance in gaining reading skills or study skills. No credit. (1-3).

RDG 101
COLLEGE READING AND STUDY SKILLS
Designed to enable students to acquire or review basic reading and study skills essential for success in college courses. Specific reading skills develop comprehension, vocabulary, and speed. Effective study habits and skills include outlining, summarizing, underlining, notetaking, and test-taking techniques. 2 Elective Cr. (2-0).

RDG 102
COLLEGE STUDY SKILLS (5 weeks)
Designed to enable students to develop effective study habits and skills. Emphasis on outlining, summarizing, underlining, notetaking and test-taking techniques. 1 Elective Cr. (2-2)

RDG 103
LIBRARY SKILLS (5 weeks)
Designed to enable students to become familiar with and to locate and use materials in the WACC library. Emphasis on the preparation of the working outline of a research paper. 1 Elective Cr. (2-2).

DIESEL MECHANICS (DMC)

DMC 713
INTRODUCTION TO DIESEL MECHANICS (8 weeks)
Precision mechanical measurement. Basic fastening devices. Gasoline and diesel engine operation and service. 7 Cr. (9-15).

DMC 714
INTERNAL COMBUSTION ENGINES (8 weeks)
Introduction to diesel engines. Electrical systems, with emphasis on cranking, lighting, ignition, charging circuits, hand tools, power tools, and bench work. 7 Cr. (9-15).

DMC 723
FOUR-CYCLE DIESEL ENGINES (8 weeks)
Four-cycle diesel engine repair and overhaul. Emphasis on diesel truck engines. 7 Cr. (9-15). *Prerequisites: DMC 713, DMC 714.*

DMC 724
TWO-CYCLE DIESEL ENGINES (8 weeks)
Two-cycle diesel engine repair and overhaul. Application of diesel power, including trucks. Air induction system overhaul and troubleshooting. Basic air-conditioning/refrigeration principles.
7 Cr. (9-15). *Prerequisites: DMC 713, DMC 714, DMC 723.*

DMC 833
FUEL INJECTION SYSTEMS I (8 weeks)
Introduction to diesel fuel injection systems. Principles of governing and mechanical governing. Principles of jerk type fuel systems.
7 Cr. (9-15). *Prerequisites: DMC 713, DMC 714, DMC 724, or SOE 725, or AMC 726 or AMD 114.*

DMC 834
FUEL INJECTION SYSTEMS II (8 weeks)
Hydraulic governors. Principles of distributor type fuel systems.
7 Cr. (9-15). *Prerequisites: DMC 713, DMC 714, DMC 723, DMC 724, DMC 833.*

DMC 843
TRUCK TRACTOR POWER TRAIN (8 weeks)
Truck power train. Clutch, transmission, driveline, and differential.
7 Cr. (9-15). *Prerequisites: DMC 713, DMC 714, DMC 723, DMC 724.*

DMC 844
TRUCK TRACTOR CHASSIS (8 weeks)
Truck chassis, brakes, and suspension. State inspection procedures.
7 Cr. (9-15). *Prerequisites: DMC 713, DMC 714, DMC 723, DMC 724, DMC 843.*

DRAFTING—ENGINEERING (EDT)

EDT 101
MECHANICAL DRAWING
Offered to students who are enrolled in curricula other than drafting. Use of drawing instruments, lettering, geometric construction, orthographic projection, technical sketching, isometric and oblique sketches, dimensioning, sections, auxiliary views, threads and fasteners, working drawings, and blueprint reading. 2 Cr. (1-3).

EDT 102
ENGINEERING DRAFTING
Practical application of drafting to the electrical construction field for both domestic and commercial use; house diagrams with circuit schematics, wiring diagrams and complete bill of material and layout diagrams for public facilities such as the lighting system for a small community. 2 Cr. (1-3).

EDT 103
GEARS AND CAMS
A study of motion transfer through the use of gears and cams. 2 Cr. (1-3).

EDT 104
AIRCRAFT DRAWINGS
Aircraft blueprint reading for aviation maintenance technicians with emphasis on the reading and interpretation of multiview drawings, including installation diagrams, schematics, the use of charts and graphs. Making three dimensional sketches for repair and alterations to aircraft. 2 Cr. (1-3).

EDT 106
INDUSTRIAL PROCESSES
Theories and applications in the principal metal removal, forming, joining, and casting processes. 2 Cr. (2-0).

EDT 107
BLUEPRINT READING
A study of blueprint reading for welders with emphasis on the reading and interpretation of multiview drawings involving dimensions, notes, specifications and welding symbols. 2 Cr. (1-3).

EDT 111
BASIC DRAFTING I (8 weeks)
Use of drawing instruments, lettering, geometric construction, orthographic projection, sectioning, dimensioning, auxiliary views, revolutions and freehand sketching. 4 Cr. (4-12).

EDT 112
BASIC DRAFTING II (8 weeks)
Inclusion of screwthreads and fastening devices, axonometric projection; isometric drawings, study of sheet metal intersections and developments. 4 Cr. (4-12). *Prerequisite: EDT 111.*

EDT 121
POWER TRANSMISSION (8 weeks)
A study of power and motion transfer through the use of gears and cams and other devices. 4 Cr. (4-12).

EDT 122
MECHANISMS (8 weeks)
A study of power and motion transfer through the use of various linkages and mechanisms. 4 Cr. (4-12).

EDT 201
DESCRIPTIVE GEOMETRY
Principles of orthographic projection; fundamental problems involving the relationship of points, lines and planes in space; intersecting lines and planes; graphical computations for bearings and slopes of lines, strike and dip of planes; solution of problems of intersection of planes and solids. 3 Cr. (1-6). *Prerequisite: High school background in drafting.*

EDT 231
DETAIL AND ASSEMBLY DRAWINGS (8 weeks)
Accurate working drawings, sub-assemblies and assemblies; drawing details from sketches and other engineering specifications; applied strength of materials; bearings; lubrications; elementary design and simplified drafting. 4 Cr. (4-12). *Prerequisite: EDT 112.*

EDT 232
APPLIED DRAFTING TECHNIQUES (8 weeks)
Complicated detail drawings from industrial castings; comprehensive study of close tolerance dimensioning; introduction to fluid mechanics; metric conversion. 4 Cr. (4-12). *Prerequisite: EDT 231.*

EDT 241
ADVANCED DETAIL I (8 weeks)
Redesign of industrial castings into weldments; detail drawings from engineering layouts; comprehensive study of welding, piping and layouts; strength of material as applied to weldments and piping design. 4 Cr. (4-12).

EDT 242
ADVANCED DETAIL II (8 weeks)
Advanced study and application of drafting using layouts from industry to make detail, assembly and sub-assembly drawings; included are geometric tolerancing, true position dimensioning and surface specifications in accordance with industrial standards; structural drafting and reprodrafting. 4 Cr. (4-12). *Prerequisite: EDT 232.*

E

ECONOMICS (ECO)

ECO 201
PRINCIPLES OF ECONOMICS
An introductory course dealing primarily with the United States economy, its make-up and problems. 3 Cr. (3-0).

ECO 202
ECONOMIC ANALYSIS
A study of the theory of the firm, and analysis of economic problems involved in public policy decisions. Recommended for students intending to major in economics. 3 Cr. (3-0). *Prerequisite: ECO 201.*

ECO 290
SPECIAL STUDIES IN ECONOMICS
A flexible course designed to meet special needs of economics students. 1-3 Cr. (1 to 3-0). *Prerequisite: Permission of the instructor.*

EDUCATION (EDU)

EDU 111
INTRODUCTION TO EDUCATION
Foundations of education: historical, economic, philosophical, and social. Their implications for present-day education. 3 Cr. (3-0).

EDU 121
CHILDREN'S AND YOUNG ADULT LITERATURE
Comprehensive survey of children's and young adult literature. Provides a basic knowledge and understanding of authors, illustrators, and literary forms as background for work in a public area. 3 Cr. (3-0).

ELECTRIC (ELC & ELT)

ELC 711
DIRECT CURRENT FUNDAMENTALS
Study of basic electrical laws, electrical terms, batteries, electrostatics, electrical meters and instruments, direct-current machinery. 6 Cr. (4-6).

ELC 712
BASIC WIRING LAB
Lab course in tools and materials of trade; proper use and care of hand tools; instruction in wiring of these basic circuits; residential lighting and receptacle circuits, low voltage switching and control circuits; use of electrical underwriters rules in color coding. 3 Cr. (1-5).

ELC 713
MOTOR REWINDING
Electrical and mechanical features of various single phase motors; lab work and developing knowledge and skill in rewinding and repairing single phase motors. 3 Cr. (1-5).

ELC 721
BASIC MOTOR CONTROL
Theory and lab assignment involving wiring of starting and control equipment for DC and AC motors; including circuitry for start-stop stations, forward-reverse and jogging push button stations, and some speed control. 4 Cr. (3-3).

ELC 722
ALTERNATING CURRENT FUNDAMENTALS
Study of nature of alternating current electricity as related to residential, commercial and industrial power use; laws and formulas needed for the solution of problems in the use of AC power, study of AC machinery; lab work for demonstrating AC electrical principles; practical experience in hook-up of equipment and instruments. 6 Cr. (4-6). *Prerequisite: ELC 711.*

ELC 723
RESIDENTIAL BLUEPRINT AND CODE
Study of residential wiring circuits, low voltage remote control switching and electric heating, study of the National Electrical Code book and its provisions dealing with residential and other types of wiring. 4 Cr. (4-0).

ELC 832
ADVANCED MOTOR CONTROL
Theory and laboratory assignments further jobs learned in ELC 721, with the study and use of speed controls, plugging equipment for braking and dynamic braking, timing relays involving pneumatic and dash pot types. 3 Cr. (1-5). *Prerequisite: ELC 721.*

ELC 833
BASIC ELECTRICAL CONSTRUCTION LAB
Experience in the use and installation of electrical materials; house wiring circuits, wiring boxes of many kinds, armored cable, Wiremold and romex, fluorescent and incandescent light switches and receptacle circuits. 3 Cr. (1-6). *Prerequisite: ELC 712*

ELC 834
BASIC ELECTRONICS FOR INDUSTRY
Basic electronics concepts used in industrial control. Study of vacuum tubes, electronic circuits, solid state devices, symbols, and motor circuits. Application of these devices in laboratory practices demonstrates use in industry. 6 Cr. (4-6). *Prerequisite: ELC 722.*

ELC 843
INDUSTRIAL MOTOR CONTROL
Study of industrial control circuitry involving theory of SCR equipment, static control and circuitry, logic; laboratory experience in designing and constructing control panels used in industry. 4 Cr. (3-3). *Prerequisite: ELC 832.*

ELC 844
COMMERCIAL & INDUSTRIAL BLUEPRINT READING
Study of electrical construction planning for industry and commerce and relevant electrical code. 4 Cr. (4-0).

ELC 845
ADVANCED ELECTRICAL CONSTRUCTION
Practice in installation of rigid conduit and other electrical wireways; pulling in and wiring of motor controllers and other electrical equipment; study of blueprints of large electrical construction jobs. 3 Cr. (0-9). *Prerequisite: ELC 833.*

ELC 846
ELECTRICAL MACHINERY, ANALYSIS AND REPAIR
Theory and laboratory instruction in use of complex metering methods used with industrial equipment, static and logic circuitry, equipment troubleshooting and repair using schematic diagrams, power transmission and distribution. 4 Cr. (2-6). *Prerequisite: ELC 834.*

ELT 110
ELECTRICITY FOR THE TRADES
Theory and laboratory assignments involving electrical design and symbols as noted on building construction blueprints. Explanation of electrical diagrams, and National Electrical Code as governing agent setting rules for wiring requirements. Residential wiring, switching, lighting, receptacles, and service entrances in the laboratory. 3 Cr. (2-3).

ELT 111
DIRECT CURRENT FUNDAMENTALS
A study of the basic principles of electricity and the laws and formulas which are used to solve electrical problems. Principles of magnetism and their relationship to direct current generators and motors and other electrical machinery. Laboratory work to enable the student to hook up equipment and instruments. 5 Cr. (4-3).

ELT 112
BASIC WIRING LAB
Instruction in wiring basic electrical circuits, residential lighting and receptacle circuits. Low voltage switching and control circuits. Electrical underwriters rules. Proper use and care of hand tools. 3 Cr. (1-6).

ELT 113
ACCIDENT PREVENTION
Principles of accident prevention in industry and electrical safety procedures in all human activities; lifesaving techniques. 2 Cr. (2-0).

ELT 121
RESIDENTIAL BLUEPRINT READING/NATIONAL ELECTRICAL CODE
Planning and drawing residential wiring systems; calculating number and size of circuits needed for lighting, appliance, and heating; remote control systems; study of National Electrical Code requirements for residential, industrial, and commercial wiring. 4 Cr. (4-0).

ELT 122
ALTERNATING CURRENT FUNDAMENTALS
The fundamental principles of the behavior and flow of alternating current electricity. Includes problem solving, current, voltage, impedance, reactance and power factor in series and parallel circuits. Operating principles of AC motors, generators and control equipment. 5 Cr. (4-3). *Prerequisite: ELT 111.*

ELT 123
BASIC ELECTRICAL CONSTRUCTION LAB
Further study of the use of electrical equipment and materials, including all types of wiring devices and wiring systems. Planning and installing electrical systems, bending conduit, pulling in wires, connecting devices, lighting systems and distribution systems. 2 Cr. (1-3). *Prerequisite: ELT 112 or ELC 712.*

ELT 233
BASIC ELECTRONICS
Fundamentals of electronics including basic symbols, circuit configurations, electron tubes, solid state devices; rectifier, amplifier, and oscillator circuits as used in industrial work. Laboratory skills demonstrate practical application of industrial electronics through layout and assembly of various circuits, along with solid state devices. 6 Cr. (4-6). *Prerequisite: ELT 122.*

ELT 234
ELECTRICAL MOTOR CONTROL
Motor control systems in industry, simple and complex, tracing circuits and troubleshooting a system from a schematic drawing. The principles of rotating and magnetic amplifiers, and static switching. 4 Cr. (3-3).

ELT 241
ELECTRICAL SYSTEMS ANALYSIS
Understanding electrical equipment and electrical testing apparatus to aid in locating and repairing malfunctions in equipment. Preventive maintenance and maintenance records. Use of voltmeters, ammeters, wattmeters, ohmmeters, megohmmeters, wheatstone bridge, tachometer, and all hand tools associated with the electrical trade. 2 Cr. (1-3). *Prerequisite: ELT 233.*

ELT 242
ELECTRICAL CONSTRUCTION BLUEPRINT READING
Blueprint reading and circuit planning for construction in factories and commercial buildings. Reference to the rules of the National Electrical Code and the Department of Labor and Industry. 4 Cr. (4-0).

ELT 244
ADVANCED ELECTRICAL THEORY
Solution of network problems and problems involving charge and discharge of capacitors, rotating vectors and other problems involving alternating electricity. 3 Cr. (3-0). *Prerequisite: ELT 122.*

ELT 531
AIR CONDITIONING/REFRIGERATION ELECTRICITY
Basic AC and DC circuitry, laws of electricity, uses of meters, and safety procedures are included in the course as they apply to air conditioning and refrigeration. Practical techniques in wiring and sections of the National Electrical Code are studied. 6 Cr. (4-6).

ELT 541
ELECTRIC MOTORS AND REFRIGERATION CONTROLS
Theory of operation, application, installation, and troubleshooting of electrical control circuits, control devices used in air conditioning and refrigeration. The course also covers the basic types of motors used in the industry and their operation and application. 5 Cr. (3-6).

ELECTRONICS (ENT)

ENT 111
DC - AC THEORY
Introduction to electrical and electronics theory, including basic atomic theory, Ohm's Law, Kirchoff's Law with formulas and calculations for network analysis; AC waveforms; capacitance and inductance, resonance; vector analysis, complex AC numbers, including the j operator. 5 Cr. (5-0).

ENT 115
ELECTRONICS LABORATORY I
Application of basic AC - DC theory concepts; wiring, soldering techniques and circuit construction practices for electronic circuits; introduction to the use of test equipment and measuring techniques; safety practices for electronics. 3 Cr. (0-9).
Prerequisites or Corequisites: ENT 111, ENT 116.

ENT 116
INTRODUCTION TO SOLID STATE DEVICES
Physics of solid state devices. Their essential characteristics, symbols and quiescent operating modes are emphasized; basic circuits are introduced. 3 Cr. (3-0).

ENT 125
INTERMEDIATE SOLID STATE DEVICES AND CIRCUITS
Continuation of ENT 116; AC equivalent circuits, design analysis; op-amps; integrated circuits; multi-stage design; feedback analysis. 5 Cr. (5-0). *Prerequisite: ENT 116.*

ENT 126
ELECTRONICS LABORATORY II
Construction and measurement of a variety of solid state devices and circuits; extensive measurement techniques are employed to collect data; emphasis is placed on the presentation of collected data in technical report form using narrative and graphic techniques.
3 Cr. (0-9). *Prerequisites or Corequisites: ENT 115, ENT 125.*

ENT 127
INTRODUCTION TO DIGITAL ELECTRONICS
Digital number systems and codes; introduction to basic gates and associated circuits; digital analysis by timing diagrams. 3 Cr. (3-0).

ENT 233
COMMUNICATION CIRCUITS AND SYSTEMS
Modulation systems for transmission and reception; wave propagation; transmission lines and antennas; digital communication techniques; high power vacuum tube circuits. 5 Cr. (5-0). *Prerequisite: ENT 125.*

ENT 237
ELECTRONICS LABORATORY III
Advanced prototyping techniques; communication circuit alignment and measurement with specialized test equipment; digital circuit implementation with a variety of logic families; advanced technical report writing. 3 Cr. (0-9).
Prerequisites or Corequisites: ENT 233, ENT 238.

ENT 238
INTERMEDIATE DIGITAL ELECTRONICS
Continuation of ENT 127; state of the art digital circuits are analyzed; digital measuring equipment and techniques are emphasized.
3 Cr. (3-0). *Prerequisite: ENT 127.*

ENT 241
CALIBRATION AND STANDARDIZATION
Designed to provide the student with the principles of electronic instrument calibration and standardizing techniques; instruments used in laboratory are calibrated according to the National Bureau of Standards. 3 Cr. (2-3).

ENT 246
INTRODUCTION TO MICROPROCESSORS
Provides an understanding of basic microprocessor architecture; develops an understanding of microcomputer programming techniques and software aids, and illustrates methods of interfacing microcomputers to digital systems. 5 Cr. (5-0).
Prerequisites: ENT 127, ENT 238. Corequisite: ENT 247.

ENT 247
ELECTRONICS LABORATORY IV
Lab experiments will complement ENT 246. Each student will be provided with a microprocessor trainer to implement programming and interfacing techniques; use of specialized digital measuring instrumentation, including complex logic analyzers and storage oscilloscopes. 3 Cr. (0-9). *Corequisite: ENT 246.*

ENT 248
ADVANCED CIRCUIT ANALYSIS
Latest state of the art devices and circuits, both analog and digital, are analyzed in detail to involve the student in advanced troubleshooting techniques. 3 Cr. (3-0).

ENGINEER IN TRAINING (EIT)

EIT 201
STATICS
The course includes the study of basic principles of statics: various force systems, static equilibrium of the force systems, friction and miscellaneous static related problems. The practical applications of these principles – analysis of roof and bridge trusses, beam under various loading conditions; belt friction and rolling resistance, flexible cables, etc. are also covered. 3 Cr. (3-0).

EIT 202
STRENGTH OF MATERIALS I
The course outlines properties of engineering materials, behavior of materials under loads, stress and deformations, riveted and welded joints, torsion, centroids, moment of inertia, areas of shear and moments in beams, stresses in beams and design of beams. Students will learn to analyze and design simple beams, riveted and welded connections, shafts subjected to torsion, etc. 3 Cr. (3-0).

EIT 203
DYNAMICS
The course covers basic principles of dynamics, i.e., kinematics of rectilinear motion, curvilinear motion, kinetics of motion, plane motion, and their effects on moving or static bodies. The application of these principles includes use of work, energy and power and impulse, momentum and impact concepts to solve various motion problems.
3 Cr. (3-0).

EIT 204
FLUID MECHANICS
The course presents the basic principles of fluid mechanics and their applications in practical fluid mechanics problems. It includes study of properties of fluids, fluid pressure at rest, buoyancy effect, steady flow of liquids in closed conduits, as well as in open channels, losses in both cases, flow measuring devices, variable flow, forces produced by fluids in motion and dimensional analysis and similitudes. All equations of the fluid flow are derived from the basic Bernoulli equation.
3 Cr. (3-0).

EIT 205
STRENGTH OF MATERIALS II
Continuation of Strength of Materials I. Covers complex problems such as deflection of beams by moment-area method, analysis of statically indeterminate beams by three moment equation and moment distribution methods, combined bending and axial stresses, analysis and design of timber, steel and aluminum columns and special topics of strain energy and impact loadings. 3 Cr. (3-0).

EIT 206
ENGINEERING ECONOMICS
Study of economics as it relates to engineering. 3 Cr. (3-0).

EIT 207
ENGINEERING CHEMISTRY
An intensive course of chemical calculations based on chemical reactions and physical properties of substances. Includes theoretical topics as needed for a basis of calculations. 3 Cr. (3-0).

EIT 208
THERMODYNAMICS
The study of energy transfer in relation to the changes in physical properties of substances. 3 Cr. (3-0).

EIT 209
ENGINEERING PHYSICS
A study of physics as it relates to engineering. 3 Cr. (3-0).

EIT 210
ENGINEERING ELECTRONICS
This course is designed to apply fundamental principles of electrical circuit analysis to EIT problems. Concepts of study include Ohm's law, series circuits, parallel circuits, series-parallel circuits, network theorems, magnetism, electro-magnetic induction, alternating current and voltage inductance, inductive reactance, capacitance, capacitive reactance, capacitive circuits, alternating current circuits, complex numbers and resonance. 3 Cr. (3-0). *Prerequisites: algebra, trigonometry and basic calculus.*

ENGLISH (ENL)

ENL 011
BASIC ENGLISH
This course emphasizes writing skills: organization, structure, content, style, and mechanics. Individualized instruction, instructor control of the writing process, limited class size, and personalization of grammar instruction are characteristic of the course. 3 Institutional Cr. (3-0).

ENL 111
ENGLISH COMPOSITION I
Basic composition involving language structure, rhetorical principles, orderly, clear writing, and readings in expository prose. Model writings offer the student a variety of methods to develop his/her own written expression. Analysis, discussion, and practice of such methods as description, definition, narration, comparison, and classification. The student uses writing to explain and explore, gaining experience in essential writing and research skills. 3 Cr. (3-0).

ENL 121
ENGLISH COMPOSITION II
Continues the writing principles of ENL 111 and includes the study of poetry, prose, and drama. Analysis, discussion, and practice of such methods of explanatory development as argumentation and evaluation in writing. The student-writer's experience and control in writing are used in situations calling for interpretation. 3 Cr. (3-0).

ENL 201
TECHNICAL WRITING
Intensive survey of technical writing with practice in preparing reports for business and industry. 3 Cr. (3-0).

ENL 202
FUNDAMENTALS OF SPEECH
Includes public speaking, its methods and evaluation, and the development of persuasive speech; involves the study of modern rhetorical theory in interpersonal and group dynamics; mass persuasion and non-verbal behavior. The student will participate as speaker in a variety of situations and roles, such as conflict, mediation, support, and common ground. 3 Cr. (3-0).

ENL 231
WORLD LITERATURE
The reading of literature expressing the western belief in the paramount importance of the individual. Includes a survey of representative works of continental Europe to the present. 3 Cr. (3-0). *Prerequisite: ENL 121.*

ENL 235
CREATIVE WRITING
Development of skills in writing imaginative prose and in presenting short stories for class criticism and review. 3 Cr. (3-0).

ENL 290
SPECIAL STUDIES IN ENGLISH
Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

ENL 711
COMMUNICATIONS
Skills and competencies in basic technical writing and oral communication relevant to the needs of the applied arts certificate student. 3 Cr. (3-0). (With permission of instructor, ENL 201 may be substituted for ENL 711 upon demonstration of appropriate writing skills. Course substitution form must be filed in such cases, if ENL 711 is required in the student's curriculum. See Communications, Humanities, Social Sciences Division Director.)

ENVIRONMENTAL SCIENCE (ESC)

ESC 100
ENVIRONMENTAL SCIENCE
Designed especially for the non-science student who wants to develop an ability to understand environmental systems and problems from a scientific viewpoint. Covers many aspects of energy, land, water, and air pollution and its relation to living organisms, especially people. 3 Cr. (3-0).

F

FOOD AND HOSPITALITY (FHD)

FHD 111
INTRODUCTORY FOODS
Study of the basic scientific principles of chemistry and physics involved in the preparation of foods as well as generally accepted food preparation practices. Included are an introduction to food purchasing and an orientation to the food service industry. 3 Cr. (2-3).

FHD 112
NUTRITION
Sources and functions of nutrients and how they relate to bodily functioning. Dietary essentials of an optimum diet. Includes nutritive requirements of each stage of the life cycle. 3 Cr. (3-0).

FHD 113
FIELD EXPERIENCE IN MANAGEMENT SYSTEMS I (8 weeks)
An introductory hands-on hospital and dietary experience, including orientation to a hospital and work experiences in dietary office practice, food preparation, beltline service, and patient visitations. 1 Cr. (0-6). (32 Clinical Hours).

FHD 114
INTRODUCTION TO FOOD SERVICE ADMINISTRATION AND MEDICAL CARE ORGANIZATIONS
Organization and management of a dietary unit, the role of the technician, and the working relationship with other health care professionals. Federal, state and local regulations of food handling. Examination of total health care systems, organizational structure, medical records, laws, and ethics. 2 Cr. (2-0).

FHD 115
PURCHASING, STORAGE, AND SANITATION
Managerial training in all facets of purchasing. Proper procedures for good storage and sanitation. Training of staff in proper procedures to assure production of safe food. 3 Cr. (3-0).

FHD 121
QUANTITY FOOD PREPARATION
Menu planning, purchasing, preparation, and service of foods in quantity. Special emphasis on safe and efficient use of quantity food preparation equipment, cooking with steam and deep fat, meats, and production management. 3 Cr. (2-3).

FHD 122
DIET THERAPY WITH DIETETIC SEMINAR
In-depth study of principles of therapeutic diets. Includes medical terminology, tours of community health services, and familiarity with diet manuals. Students learn interviewing, counseling techniques, sources of professional updating and, in seminar, study of specific therapeutic cases. 3 Cr. (3-0).

FHD 123
FIELD EXPERIENCE IN MANAGEMENT SYSTEMS II
Students work in the dietary department related to the subjects they are studying. Six hour lab periods are rotated between quantity food production, menu and cost control, and diet therapy with a one hour a week seminar with dietitian supervisor to discuss unanswered questions and learning experiences. 3 Cr. (1-6). *Prerequisite: FHD 113.*

FHD 125
MENU PLANNING AND COST CONTROL
Techniques of planning nutritious meals for commercial establishments and institutions; the printed menu presentation; controlling costs through good menu planning and other techniques. 3 Cr. (3-0).

FHD 126
FRONT OFFICE MANAGEMENT AND HOUSEKEEPING
Introduction to hotel and motel management; managing a front office, including promotion, guest registration, and cost control; management of the housekeeping department. Includes actual supervised work experience at area hotels and motels. 3 Cr. (2-3). Will be offered every other year in the spring term.

FHD 201
ADVANCED QUANTITY FOODS
Cooking foods in quantity; emphasis on advanced skills of food preparation, ordering and receiving, individual learning objectives. Will be developed to strengthen area where student needs help. 2 Cr. (0-6). *Prerequisite: FHD 121.*

FHD 231
FIELD EXPERIENCE IN MANAGEMENT SYSTEMS IV
Students receive training in kitchen and geriatric therapeutics in a Nursing Home. Emphasis is on personnel management, hiring, training, and record keeping. 3 Cr. (1-6). *Prerequisite: FHD 250.*

FHD 234
HEALTH CARE DELIVERY SYSTEMS
This course is an in-depth study of the health care programs available to the public. Students study the development of present problems and future directions of health care institutions and the medical profession. Also included are factors that consumers of health care services should be knowledgeable about in order to avoid fads and quacks. 3 Cr. (3-0).

FHD 235
PERSONNEL MANAGEMENT, WORK SIMPLIFICATION
A study of management techniques, interpersonal relationships, motivations, manual motions, work place layout, production job analysis and evaluation, establishing work loads. 3 Cr. (3-0).

FHD 236
HOSPITALITY MANAGEMENT AND THEORY
Supervised practical experience in various areas of food and hospitality management and production. Lecture and discussion of work schedules, employer-employee relations, food purchasing and preparation, supervision and training of personnel, menu planning and other subjects related to the student's choice of practicum. 2 Cr. (1-5).

FHD 241
BEVERAGE MANAGEMENT AND CATERING
Techniques used in restaurant management related to all types of beverages and bar management. Management of the catered meal. Preparation and presentation of classic and international cuisines. 3 Cr. (2-3). *Prerequisite: FHD 121, or work experience in food preparation for a varied menu.*

FHD 242
FIELD EXPERIENCE IN MANAGEMENT SYSTEMS V
Management in various nutrition programs. Students work in a school, with congregate feeding for the aged, and in a five meal a day hospital program with special emphasis on renal and cancer patients.
3 Cr. (1-6). *Prerequisite: FHD 231.*

FHD 245
EQUIPMENT AND LAYOUTS
Familiarizes students with all the latest pieces of equipment and ways to lay out facilities for best production, service, safety, and sanitation.
3 Cr. (3-0). *Prerequisite: FHD 121, or commercial or institutional work experience.*

FHD 246
HOSPITALITY MERCHANDISING
Techniques of sales, merchandising and promotion as applied to food and lodging establishments. Each student does an in-depth feasibility study on a possible investment including financing and merchandising.
3 Cr. (3-0).

FHD 250
HOSPITALITY, DIETETIC WORK EXPERIENCE (MANAGEMENT SYSTEMS III)
Prior to the beginning of the fourth semester a work experience of 120 hours is required. Dietetic Technician students work in an institutional dietary department under a registered dietitian. Food and Hospitality students work in the food and hospitality industry. Students are evaluated by employer/supervisor, submit a written report, and discuss their experience with the instructor. 1 Cr. (120 Clinical Hours).
Prerequisite for Dietetic Technician Program: FHD 123.

FOREST TECHNOLOGY (FOR)

FOR 111
DENDROLOGY
Classification, identification, and distribution of woody plants in the United States, with special emphasis on species of local commercial importance. 3 Cr. (2-3).

FOR 113
FOREST MENSURATION
Measurement of standing trees, of logs and other cut wood products; the determination of the contents of these products in terms of board feet, cubic feet, cords, and pounds. The measurement of growth in trees and forests. 3 Cr. (2-3).

FOR 115
FOREST BOTANY
The study of plant physiology and anatomy with special reference to trees. The stem structure of trees and the identification of commercial tree species based on microscopic characteristics of wood. 3 Cr. (2-3).

FOR 121
PHOTOGRAMMETRY AND FOREST SURVEYING I
Introductory study of the basic techniques of photogrammetry, photo-interpretation; introduction to surveying, including the fundamentals of plane surveying and the use and care of equipment. 3 Cr. (1-6).

FOR 124
ADVANCED FOREST MENSURATION
Quality determination of logs and trees. Estimating volumes of large timber areas by different sampling techniques. The use and interpretation of aerial photos in forest surveys. 3 Cr. (2-3).

FOR 126
FOREST ECOLOGY AND WILDLIFE MANAGEMENT
Introduction to ecology, upon which the management of forest and wildlife resources may be based. Increases the student's understanding of the ecological relationship of forest and wildlife communities.
3 Cr. (2-3).

FOR 232
FOREST SURVEYING II
Theory and practice of plane surveying techniques for application in property and boundary surveys, map making, construction surveys, and computations. Special emphasis on forestry applications of these principles. 3 Cr. (2-3). *Prerequisite: FOR 121.*

FOR 233
EQUIPMENT AND MACHINERY
The operation, care and maintenance of logging machinery, forest fire control equipment and related mechanical devices in common use in forest operations. 3 Cr. (2-3).

FOR 234
TIMBER HARVESTING
The felling, skidding, and transportation of timber products from the woods to the point of manufacture. Application of modern logging methods and techniques, including the breakdown of entire tree stems into lengths and units of highest economic value. 3 Cr. (2-3).

FOR 236
SILVICULTURE
The study of forestry practices and systems used in the establishment and management of trees for the sustained production of timber products. 3 Cr. (2-3).

FOR 242
FOREST PRODUCTS
The conversion of round timber products into a semi-finished state, and the manufacture of these raw materials into finished consumer products. Includes the seasoning of lumber and the preservative treatments of wood to improve its usefulness. 3 Cr. (2-3).

FOR 247
FOREST LAND MANAGEMENT AND RECREATION
Basic concepts of multiple use management of publicly and privately owned forest lands. Shows the importance of managing the land for recreation, wildlife, and water. 3 Cr. (2-3).

FOR 248
FOREST PROTECTION
The causes, effects, and methods of control of forest fires. The identification, effects and control of other harmful agents, principally insects and diseases. 3 Cr. (3-0).

G

GEOGRAPHY (GEO)

GEO 101
PHYSICAL GEOGRAPHY
Introduction to topographic maps, landforms, weather elements, climates, soils, and vegetation. 3 Cr. (3-0).

GEOLOGY (GEL)

GEL 105
PHYSICAL GEOLOGY
Basic concepts in the study of the Earth; relationships between Earth materials and the geologic agents and processes that create and modify minerals, rocks, landforms, continents, and the ocean basins. 4 Cr. (3-3).

GEL 106
HISTORICAL GEOLOGY
Origin of the Earth, evolution of its crust, and the development and evolution of life thereon; relationships among rock units as evidence for geologic history; fossils as documents of evolution, chronology and environment; relative and absolute age dating of the Earth. 4 Cr. (3-3). *Prerequisite: GEL 105.*

GEL 290
SPECIAL STUDIES IN GEOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. (1-3, laboratory as required).

GERMAN (GER)

GER 111
BEGINNING GERMAN I
Basic grammar and language structure. Comprehension, speaking and reading, with particular regard to pronunciation and accent. 3 Cr. (3-0). *Prerequisite: Permission of the instructor.*

GER 121
BEGINNING GERMAN II
Continuation of GER 111. 3 Cr. (3-0). *Prerequisite: GER 111.*

GOVERNMENT (GOV)

GOV 231
AMERICAN GOVERNMENT—NATIONAL
Federal government, its powers and organization. Functions of legislative, executive and judicial branches. Our federal system as it has developed. 3 Cr. (3-0).

GOV 241
STATE AND LOCAL GOVERNMENT
State and local governmental institutions, their functions and responsibilities; intergovernmental relations. 3 Cr. (3-0).

GOV 290
SPECIAL STUDIES IN GOVERNMENT
Special attention to particular abilities and interests of students Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

GRAPHIC ARTS (GCO)

GCO 511
LAYOUT AND DESIGN
Analysis of materials, tools and techniques used in preparation of copy for reproduction; paste-up and color separation overlays. 4 Cr. (2-6).

GCO 512
TYPOGRAPHIC COMPOSITION
Fundamentals of typesetting. Theory and practice in the care and use of composing machines, both hot and cold (mechanical) and cold (photo). 4 Cr. (2-6).

GCO 515
LAYOUT AND DESIGN
Offered to students who are enrolled in curricula other than Graphic Arts. Analysis of materials, tools and techniques used in preparation of copy for reproduction; paste-up and color separation overlays. 3 Cr. (2-3).

GCO 516
TYPOGRAPHIC COMPOSITION
Offered to students who are enrolled in curricula other than Graphic Arts. Fundamentals of typesetting. Theory and practice in the care and use of composing machines, both hot and cold (mechanical) and cold (photo). 3 Cr. (2-3).

GCO 521
PROCESS CAMERA
Concepts and techniques of darkroom procedure for reproduction of line and halftone copy on process cameras. 4 Cr. (2-6).

GCO 522
FILM ASSEMBLY AND IMPOSITION
A study and application of various methods of assembling negatives and positives in the form of flats in preparation for making offset plates. 4 Cr. (2-6).

GCO 525
PROCESS CAMERA
Offered to students who are enrolled in curricula other than Graphic Arts. Concepts and techniques of darkroom procedure for reproduction of line and halftone copy on process cameras. 3 Cr. (2-3).

GCO 526
FILM ASSEMBLY AND IMPOSITION
Offered to students who are enrolled in curricula other than Graphic Arts. Study and application of various methods of assembling negatives and positives in the form of flats in preparation for making offset plates. 3 Cr. (2-3).

GCO 631
PLATEMAKING, SUBSTRATES AND FINISHING
Identification, selection, and relationship of paper and board stocks, non-printing conversions for the printing, publishing, and allied industries. Theory and application relating to various types of offset plates and processing procedures. 4 Cr. (2-6).

GCO 632
PRESS OPERATIONS
Correlation of printing press operation; ink mixing and matching, registration preventive maintenance for quality analysis. 4 Cr. (2-6).

GCO 635
PRINTING ESTIMATING PRACTICES
Theory and practice in estimating jobs, writing specifications and planning jobs for production. 3 Cr. (3-0).

GCO 641
ADVANCED TYPOGRAPHIC COMPOSITION
Advanced study and application of GCO 511 and GCO 512. Special emphasis placed on photo composition as it relates to the composition industry. Students will be involved with individual projects and/or live work. 3 Cr. (1-6). *Prerequisites: GCO 511, GCO 512.*

GCO 642
ADVANCED PROCESS CAMERA AND STRIPPING
Advanced study in black and white tone reproduction, special effects and basic color procedures. Advanced work in color stripping and photo-art techniques. 3 Cr. (1-6). *Prerequisites: GCO 521, GCO 522.*

GCO 645
PRINTING PROCESSES
Theory and application of the four major printing processes: letterpress, lithography, gravure, and silk screen. 3 Cr. (1-6).

H

HEATING AND AIR CONDITIONING (HAC)
Courses offered at Lewisburg Federal Penitentiary.

HAC 711
HEATING AND AIR CONDITIONING I
Introduction to heating and air conditioning systems; use of tools of trade; board wiring, control functions, gas burner theory and servicing, IBR heating. 22 Cr. (19-9).

HAC 721
HEATING AND AIR CONDITIONING II
Study of IBR cooling, radiation as applied to heating and cooling, piping hydronics, duct design and installation, steam systems. 22 Cr. (19-9).

HAC 731
HEATING AND AIR CONDITIONING III
Installation of systems, heating servicing and troubleshooting; introduction to solar heating; cooling theory and servicing. 22 Cr. (19-9).

HISTORY (HIS)

HIS 111
WESTERN CIVILIZATION I
Survey and analysis of major intellectual, social, political, and economic developments of western civilization from ancient times until the 18th Century. 3 Cr. (3-0).

HIS 121
WESTERN CIVILIZATION II
Survey and analysis of major intellectual, social, political, and economic developments of western civilization from the 18th Century until the present. 3 Cr. (3-0).

HIS 231
UNITED STATES—SURVEY I
Political, economic, and social development of the United States from colonial times to and including the Civil War and the Reconstruction Period. 3 Cr. (3-0).

HIS 241
UNITED STATES—SURVEY II
Political, economic, and social development of the United States from 1877 to and including the Civil Rights Movement. 3 Cr. (3-0).

HIS 290
SPECIAL STUDIES IN HISTORY
Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

I

INDUSTRIAL DRAFTING (IND)

IND 714
BASIC DRAFTING (8 weeks)
Introduction to industrial drawing; lettering; geometric drawing; orthographic projections; pictorial projections; sectioning; dimensioning; auxiliary views; revolutions; sketching; reproduction processes; threads and fasteners. 5 Cr. (3-21).

IND 715
MACHINE DRAFTING (8 weeks)
Accurate detail drawings from complicated industrial machine parts, assembly, and sub-assembly drawing using industrial layouts; applying close tolerance dimensioning; geometric tolerancing; true position dimensioning; surface finish specifications in accordance with industrial and military standards. 5 Cr. (3-21). *Prerequisite: IND 714.*

IND 724
GEARS, CAMS, AND MECHANISMS (8 weeks)
Study of power transmission, pulleys, gears, sprockets, applied with mechanisms used to create motion in machines through linkage. 5 Cr. (3-21). *Prerequisite: IND 714.*

IND 725
SHEET METAL AND PIPING (8 weeks)
A study of sheet metal intersections and developments; cones; transition pieces; and connection of skewed position openings with irregular shaped duct. A comprehensive study of piping systems, piping layout drawings, and basic hydraulics. 5 Cr. (3-21). *Prerequisite: IND 714.*

IND 834
CIVIL DRAFTING (8 weeks)
Maps are made and used; plotting traverses from field notes; gathering surveying information; drawing contour maps. 5 Cr. (3-21) *Prerequisite: IND 714.*

IND 835
STRUCTURAL DRAFTING (8 weeks)
Making shop drawings from original concept of a structure conceived by the architect or engineer giving detailed instruction for punching, assembling, bolting, riveting, and welding. Basic types of loads and stresses are emphasized. 5 Cr. (3-21). *Prerequisite: IND 714.*

IND 844
ARCHITECTURAL DRAFTING (8 weeks)
House considerations such as: dining, bedrooms, living room, bath, kitchen. Identifying the components used in house construction; stair layouts; doors; windows; fireplaces; structural members and loading; working drawings. 5 Cr. (3-21). *Prerequisite: IND 714.*

IND 845
ELECTRICAL AND ELECTRONIC DRAFTING (8 weeks)
Practical application of drafting to the electrical construction field for both domestic and commercial use. House diagrams with circuit schematics, wiring diagrams and complete bill of materials; types of electronic diagrams, symbols, reference designations and identification of essential parts. National Electric Code will be explored and applied. 5 Cr. (3-21). *Prerequisite: IND 714.*

J

JOURNALISM (JOU)

JOU 111
NEWS WRITING
Techniques of basic news writing for print media and/or covering a news beat. Emphasis on organizing the story and rewriting to develop skill. Detailed critiques and class discussion of student writing. Introduction to use of the video system of writing. 3 Cr. (3-0).

JOU 113
PRINCIPLES OF NEWS PHOTOGRAPHY
Introduction to photography with an adjustable camera and auxiliary equipment. Emphasis is on techniques for producing news photos in black and white, such as lighting, imaginative posing, action. Course assumes no previous experience. Students must furnish camera. 3 Cr. (2-3).

JOU 121
REPORTING PUBLIC AFFAIRS
Development of news writing skills through class assignments and news beat coverage. Emphasis on deadlines and tight but complete writing. Focus on public events reporting in practicum and in the field. 3 Cr. (3-0). *Prerequisite: JOU 111.*

JOU 122
INTRODUCTORY NEWSPAPER PRODUCTION
Beat reporting and writing for student publications and/or the College information services under deadline pressure. Includes basics of mechanical production and publication planning. Continued use of video writing. 2 Cr. (0-6). *Prerequisite: JOU 111.*

JOU 231
FEATURE WRITING
Survey of structure of news features, "brites", color stories, and sidebars. Techniques of interviewing and researching feature stories. Writing of feature stories with goal of publication. 3 Cr. (3-0). *Prerequisite: JOU 111.*

JOU 232
COPYREADING AND EDITING
Preparing material for publication with the legal and ethical standards being considered: judicious editing of both traditional and video copy, copyreading, headline writing, picture editing, typography, layout and planning relative to print media production. 3 Cr. (3-0). *Prerequisites: JOU 111 and JOU 121, or GCO 515, or permission of the instructor.*

JOU 233
NEWSPAPER MANAGEMENT AND PRODUCTION
Service in a responsible, managerial position with student publications or in College information services. Focus on development of skill in news judgment, planning, and production. Students must have demonstrated ability to complete assignments with minimal supervision. Students must be able to coordinate individualized instructional consultations. 2 Cr. (0-6). *Prerequisite: JOU 122.*

JOU 241
NEWSPAPER ORGANIZATION AND COMMUNITY RESPONSIBILITY
Problems of law, finance, personnel, promotion, technological change, and community service involved in the management and publishing of newspapers in the United States. 3 Cr. (3-0). *Prerequisite: JOU 121.*

JOU 242
INTERNSHIP
On-the-job training with local or area media or with related business. 2 Cr. (0-6). *Prerequisites: JOU 232, JOU 233.*

M

MACHINE TOOL TECHNOLOGY & MACHINIST GENERAL (MTT)

MTT 511
MACHINING I (8 weeks)
Use of hand tools to produce layouts and objects by hand, simple filing, sawing, assembling, use of drill presses, drill sharpening; drilling to a layout, drill jigs. Producing parallel and square surfaces, shaping rectangular objects. 5 Cr. (5-15).

MTT 512
MACHINING II (8 weeks)
The theory of grinding tool bits: turning, facing, boring and thread cutting on the lathe. Practice in end milling, slab and plain milling. Practice in power tapping machines. 5 Cr. (5-15).

MTT 521
AUTOMATIC MACHINES (8 weeks)
Fundamental concepts of metal removal employing multi-tooling machining processes. Use and care of carbide tooling to obtain maximum effort. Instruction will center on turret lathes, automatic screw machines, automatic power tapping machines. 5 Cr. (5-15).

MTT 522
INDUSTRIAL METROLOGY (8 weeks)
The use of precision instruments such as verniers, various types of comparators, Rockwell hardness testing, toolmakers scope, flatness checking, surface plate work including the use of the sine bar, advanced blueprint reading, introduction to metric measurements, and controlling quality of work by sampling method. 5 Cr. (5-15).

MTT 631
TOOLING TECHNOLOGY I (8 weeks)
Theory and practice in machining, cutting and assembly of precision die parts, layout and boring to close tolerance in jigs and fixtures. Knowledge and practice in machining different types of threads and their application. 5 Cr. (5-15).

MTT 632
TOOLING TECHNOLOGY II (8 weeks)
Understanding and practice in operation of numerically controlled machining center types of machines and coding methods involved, machining of gears, terminology of gears, power transmission and indexing methods, simple, differential and helical milling. 5 Cr. (5-15).

MTT 641
ABRASIVE MACHINING (8 weeks)
Theory and practice in surface, cylindrical, internal, and jig grinding, grinding of threads, taps, electrical chemical grinding, and electrical discharge machining are included. 5 Cr. (5-15).

MTT 642
HEAT TREATMENT AND CUTTER GRINDING (8 weeks)
Theory and practice in hardening and tempering of various kinds of metal, carburizing, case hardening, annealing, normalizing, and forging of steel. Grinding of all types of tools and cutters is included.
5 Cr. (5-15).

MARKETING/MERCHANDISING (MKT)

MKT 234
RETAIL MERCHANDISING I
This course is designed to familiarize students with the field of retailing. It will provide the technical and theoretical knowledge necessary for retail management employment. 3 Cr. (3-0).

MKT 240
MARKETING
This course illustrates various methods of merchandising and the channel of distribution from producer or manufacturer to the ultimate consumer. Government regulations, pricing, cost and branding, influence of buyers and consumers on marketing programs and current marketing trends are presented. 3 Cr. (3-0).

MKT 243
SALES
Sales examines the positive role personal selling plays in the American economy and documents the extent to which selling has aided in our economic growth. This course is designed to show the sales role in helping customers recognize and satisfy wants and needs, and how this satisfaction can lead to a higher standard of living. 3 Cr. (3-0).

MKT 244
RETAIL MERCHANDISING II
This course continues concepts to help build an understanding and appreciation of activities needed to make a retail business succeed. These activities will have an emphasis on information systems through electronic data processing. Retailing is studied from the viewpoint of a middle manager in a large retailing firm as well as a manager of one's own business. 3 Cr. (3-0).

MKT 246
FASHION MERCHANDISING
This course is designed to familiarize students with the field of fashion merchandising. It will provide the technical and theoretical knowledge necessary for fashion management. 3 Cr. (3-0).

MATHEMATICS (MTH)

MTH 001
ARITHMETIC
Comprehension of the basic concepts and skills of arithmetic to prepare students for required mathematics courses. Pre and post-tests are used to prescribe and insure mastery of units covered.
3 Institutional Cr. (3-0).

MTH 002
BASIC ALGEBRA
Basic skills and concepts of arithmetic and algebra are presented according to the learner's aptitudes and needs. Pre and post-tests are used to prescribe and insure mastery of units covered. The course may require more than one semester for mastery of the objectives.
3 Institutional Cr. (3-0).

MTH 101
INTRODUCTION TO MATHEMATICS I
Explorations with number and geometric patterns, problem solving, mathematical recreations, flow charts, sets, logic, systems of numeration, an introduction to algebra, and other selected topics. Intended as a general education course for non-mathematics or science majors. 3 Cr. (3-0). *Prerequisite: One year of high school mathematics.*

MTH 102
INTRODUCTION TO MATHEMATICS II
Mathematical systems, properties of integers, rational, real and complex numbers, selected topics from geometry, probability, and statistics. Intended as a general education course for non-mathematics or science majors. 3 Cr. (3-0). *Prerequisite: MTH 101.*

MTH 103
COLLEGE ALGEBRA
Properties of real numbers, basic algebraic operations, relations and functions, equations and inequalities, basic right triangle trigonometry, sine and cosine laws. Designed for general studies and technology students desiring a thorough precalculus algebra background. 3 Cr. (3-0). *Prerequisite: Two years of high school algebra, and MTH 002 or MTH 105, or placement by examination.*

MTH 104
COLLEGE TRIGONOMETRY
Continuation of MTH 103. Circular, trigonometric, inverse, exponential, and logarithmic functions, complex numbers, polar coordinates, determinants, systems of equations, and other selected topics. 3 Cr. (3-0).
Prerequisite: MTH 103 or placement by examination.

MTH 105
INTERMEDIATE ALGEBRA
Properties of real numbers, polynomials, fractions, exponents, roots, and radicals, first and second degree equations and inequalities in one variable, functions, graphs, and other selected topics. Intended for students without a strong working knowledge of algebra. 3 Cr. (3-0). Cannot be used to satisfy general studies requirement. Cannot be used as elective credit in programs requiring MTH 103. *Prerequisite: One year of high school algebra or placement by mathematics exam.*

MTH 107
APPLIED CALCULUS
Relations and functions, conics, limits, derivatives and integration of algebraic functions, trigonometric functions and transcendental functions, methods of integration and applied problem solving. Is excellent preparation for students who intend to sit for the Engineer in Training Examination. 3 Cr. (3-0). *Prerequisite: College algebra and trigonometry or permission of instructor.*

MTH 201
ELEMENTARY STATISTICS I
An introduction to frequently applied statistical methods; descriptive statistics, frequency distributions, elementary probability, binomial and normal distributions, Central Limit Theorem, statistical inference and tests of hypotheses, Chi-square and t-tests. Intended for general studies and technology students desiring a basic working knowledge of statistics. 3 Cr. (3-0). *Prerequisite: One year of high school algebra.*

MTH 202
ELEMENTARY STATISTICS II
Continuation of MTH 201, with emphasis on applied statistical techniques and design of experiment; Student T, Chi-square, F-tests, linear regression, correlation, and models; analysis on enumerative data; analysis of variance; non-parametric statistics. To be offered regularly in the Spring Term of even numbered years. 3 Cr. (3-0). *Prerequisite: MTH 201.*

MTH 204
MATRIX ALGEBRA
Matrices, determinants, inverse of a matrix, rank and equivalence, linear equations and linear dependence, vector spaces, linear transformations, characteristic equations of a matrix, bilinear, quadratic, and Hermintian forms. Recommended for computer science, science, and technology students. May be used as a core requirement or general elective for general studies students. To be offered regularly in the Spring Term of odd numbered years. 3 Cr. (3-0).
Prerequisite: Two years of high school algebra, MTH 103, or permission of instructor.

MTH 238
CALCULUS I
Algebra review, functions, limits, continuity, derivatives, velocity, rates of change, chain rule, curve sketching, related rates, maximum-minimum theorems, differentials, applications, antiderivatives. 4 Cr. (4-0). *Prerequisite: MTH 103 and MTH 104, or placement by math exam, or permission of instructor.*

MTH 248
CALCULUS II
Continuation of MTH 238 with emphasis on the definite integral, applications of integration, transcendental functions, techniques of integration, and other selected topics. 4 Cr. (4-0). *Prerequisite: MTH 238.*

MTH 290
SPECIAL TOPICS IN MATHEMATICS
Special arrangements of individuals or groups to study topics of interest, i.e., Differential Calculus, Modern Algebra, Modern Geometry. Arrangement to be made through instructor and Division Director. One to four credits per course.

MTH 500
TECHNICAL MATHEMATICS II
Topics from algebra, geometry, right triangle trigonometry, and others. Special emphasis on applications to practical problems in the student's area of concentration. 3 Cr. (3-0). Cannot be used to satisfy math requirements for students in the General Studies Associate Degree program. *Prerequisite: MTH 710 or equivalent or permission of instructor.*

MTH 710
TECHNICAL MATHEMATICS I
Arithmetic operations with whole numbers, common and decimal fractions, per cent, basic principles of measurement, basic algebra, applied algebra, basic trigonometry, fundamentals of the metric system, and other selected topics for technical-vocational mathematics. Intended for students in certificate programs. 3 Cr. (3-0). Placement by mathematics examinations.

MTH 715
GENERAL AVIATION MATHEMATICS
Fundamental operations with common and decimal fractions, mixed numbers, square root algorithm, area, volume, ratio, signed numbers, and other selected topics. Intended for aviation maintenance technicians (AC). 3 Cr. (3-0).

MEDICAL TERMINOLOGY (MTR)

MTR 101
MEDICAL TERMINOLOGY I
Introduction to medical terminology with emphasis on etiology, symptomatology, pathology, and diagnostic procedures. 3 Cr. (3-0).

MTR 102
MEDICAL TERMINOLOGY II
Continuation of MTR 101. Course is designed to develop the ability to read and understand the language of medicine. Emphasis on the meaning of root words and their combining forms. 3 Cr. (3-0).
Prerequisite: MTR 101.

O

OPERATING ROOM TECHNICIAN (ORT) (SURGICAL TECHNOLOGY)

ORT 710
BODY STRUCTURE AND FUNCTION
Introduction to the structure and function of the human body: general plan, cell tissues and tumors, membranes, musculo-skeletal, nervous, circulatory, digestive, respiratory, reproductive, and endocrine systems. 5 Cr. (5-0).

ORT 711
OPERATING ROOM TECHNIQUES I
General introduction to hospitals and operating rooms. Job descriptions and qualifications. Professional, legal, moral, and religious responsibilities. Concepts of anesthesiology, asepsis, and safety. Related housekeeping skills. Personal health and hygiene. Techniques and skills of the operating room technician. Selected learning experiences in the operating room. 13 Cr. (10-10).

ORT 720
OPERATING ROOM TECHNIQUES II
The study of the condition of illnesses, operations, positioning, equipment, materials, and anesthesia used in the various surgical specialties with selected experience in the operating room. 4 Cr. (4-0). *Prerequisites: ORT 710 and ORT 711.*

ORT 721
SUPERVISED CLINICAL EXPERIENCE
Practical clinical experiences enabling the student to function at a beginning level as assistant circulator and scrub-in technician. 10 Cr. (2-24). *Prerequisites: ORT 710 and ORT 711.*

ORNAMENTAL HORTICULTURE (FLR, NMG, OHT)

FLR 121
GREENHOUSE CROP PRODUCTION I
An introduction to greenhouse crop production with emphasis on environmental control, plant culture, facilities, and equipment. Includes demonstration of techniques. 3 Cr. (2-3).

FLR 122
FLORAL DESIGN I
Instruction and application of principles in the art of floral design, including form, styles, and composition. Includes designing floral arrangements, wreaths, sprays, baskets, bouquets, wedding flowers, and corsages. 3 Cr. (1-6).

FLR 232
GREENHOUSE CROP PRODUCTION II
Production of cut flowers and potted plants with emphasis on techniques used for important commercial crops. Each crop will be grown by students using school facilities. 3 Cr. (2-3).

FLR 233
FLORAL DESIGN II
A continuation of FLR 122 with the addition of designing dried and permanent arrangements. Stresses shop layout and familiarity with routine procedures in the operation of a flower shop. 3 Cr. (2-3).
Prerequisite: FLR 122.

FLR 243
GREENHOUSE CROP PRODUCTION III
Production of potted plants, bedding plants, and other crops using commercial techniques. Includes production, planning, crop rotation, and the role of management. 3 Cr. (2-3).

FLR 244
FLOWER SHOP OPERATION
Emphasizes buying, pricing, sales, inventory, personnel, record keeping, and general principles related to the commercial retail flower shop. Lab practice in perfecting design techniques and originality. 3 Cr. (2-3).

FLR 245
HOUSE AND CONSERVATORY PLANTS
Identification, culture, propagation and use of house and conservatory foliage plants. Course includes artificial lighting, indoor landscaping for home, malls and business, soils and fertilizers for commercial growing, insects, diseases, and cultural problems associated with foliage plants. 3 Cr. (2-3).

NMG 121
NURSERY PRODUCTION I
Classified nurseries and careers; covers aspects of garden center location, layout and design and merchandising techniques. Includes nursery structures and facilities, nursery equipment, plant growth, growth habits and pruning, nursery practices of ball and burlapping and transplanting. 3 Cr. (2-3).

NMG 126
WOODY PLANTS II
Continuation of OHT 115. Additional plants are studied with major emphasis on the study of deciduous trees, shrubs, vines, ground covers, and their varieties and cultivars. 3 Cr. (2-3).
Prerequisite: OHT 115.

NMG 232
NURSERY PRODUCTION II
Nursery aspects of plant propagation, with emphasis on field and container production techniques, production schedules, nursery soil management, weed control, and cost analysis. 3 Cr. (2-3).
Prerequisite: NMG 121.

NMG 237
WOODY PLANTS III
Advanced study of plant identification. Emphasis on the study of broad leaved and narrow leaved evergreens – their varieties and cultivars. 3 Cr. (2-3). *Prerequisites: NMG 126, OHT 115.*

NMG 245
LANDSCAPE CONSTRUCTION
Techniques used in the construction of landscape features such as patios, walks, retaining walls, fences, fountains, waterfalls, pools and steps using various construction materials. Includes establishment and maintenance of lawns and plantings. Specifications, bidding and pricing of landscape jobs are also covered. 3 Cr. (1-6).

NMG 248
LANDSCAPE MAINTENANCE
Covers aspects of turf management and tree care (arboriculture). Establishment and maintenance of different types of turf areas. Emphasis on golf course, institutional, park, and home turf areas. Shade tree planting, climbing, guying, pruning, fertilizing, cabling, and bracing. Stresses evaluation of ornamental trees and general care. 3 Cr. (2-3). *Prerequisites: OHT 115, OHT 239.*

NMG 249
LANDSCAPE DESIGN
Covers the principles and problems of landscape design. Emphasis on the proper and effective use of plant materials in developing domestic and public areas to make them as attractive and utilitarian as possible. Includes basic drawing and drafting principles. 3 Cr. (1-6).
Prerequisites: NMG 126, OHT 115.

OHT 114
HORTICULTURE SOILS
Study of soil texture, structure, organic matter, and plant nutrients as they are related to the use of lime and fertilizers. Synthetic soils and moisture-air relationships included. 3 Cr. (2-3).

OHT 115
WOODY PLANTS I
An introduction to the study of trees, shrubs and vines grown in nurseries for landscape purposes. The course stresses the identification and uses of woody plants. 2 Cr. (1-3).

OHT 116
HERBACEOUS PLANTS
A study of the classification, identification, and general culture of perennials, bulbs, and roses. Landscape use and design of flower borders is practiced. 3 Cr. (2-3).

OHT 234
PLANT PROPAGATION
Theory and practice of plant propagation by sexual and asexual means with applications in floriculture production, nursery production, and forestry. 3 Cr. (2-3).

OHT 239
PLANT INSECTS & DISEASES
Study of the insects and diseases of horticulture crops. The nature, structure, growth habits, injurious effects, and control of insects and related forms. The most common and injurious plant diseases are studied for identification and control. 3 Cr. (2-3). *Prerequisite: BIO 111.*

OHT 246
HORTICULTURE MECHANICS
Operation and maintenance of horticulture equipment to include small gasoline engines, electric motors, electrical fans, environmental controls, and other soil working and irrigation equipment. 3 Cr. (2-3).

P

PHILOSOPHY (PHL)

PHL 111
INTRODUCTION TO PHILOSOPHICAL ANALYSIS
Investigation of major perennial problems in philosophy: Meaning and Truth, Perception and External World; God, Mind and Body.
3 Cr. (3-0).

PHL 121
ETHICS AND POLITICAL PHILOSOPHY
Status of deontological language, free will and responsibility, major issues in contemporary political philosophy. 3 Cr. (3-0).

PHYSICAL EDUCATION (PED)

The Physical Education requirements may be waived with permission of the Dean and the Director of Physical Education if the student has been in the Armed Services for at least one year of active duty or if it is determined that he/she should be excused because of age or physical condition.

PED 100
PHYSICAL EDUCATION
Two or more individual sports per semester. 1 Cr. (0-2).
Instruction in the fundamental skills necessary for individual and/or partner competition. Stress is placed on playing the game, rules and regulations, scoring, strategy, game courtesies, and choice of equipment. Examples of combinations offered are: Tennis/Bowling, Golf/Bowling, Badminton/Weight Training.

PED 120
PHYSICAL EDUCATION
Two or more team sports per semester. 1 Cr. (0-2).
Instruction and team participation in basic skill fundamentals, player positioning, strategy and rules as related to game situations. Generally one sport is played outdoors and one sport is played indoors. Examples of combinations offered are: Football/Volleyball/Basketball, Soccer/Volleyball/Basketball, Volleyball/Basketball/Softball, Volleyball/Basketball.

PED 140
PHYSICAL EDUCATION
One individual and one team sport per semester. 1 Cr. (0-2). Examples of combinations are: Archery/Volleyball, Badminton/Volleyball.

PED 160
PHYSICAL EDUCATION
One individualized sport or activity per semester. 1 Cr. (0-2). Examples are Swimming, Hatha Yoga, and Aerobic Dance. Sports offered at various times include:

Adaptive Physical Education
An individualized course designed to meet the specific needs of the student with a physical handicap. Depending upon the handicap, activities may be a combination of appropriate individual sports and/or a self-development program, such as Hatha Yoga or progressive general exercise.

Aerobic Dance
Vigorous physical activity combining locomotive movements for cardio-vascular endurance, exercise for muscle tone and flexibility, and basic dance steps for rhythmical development and coordination. The sequences are performed to a variety of musical scores.

Gymnastics
Instruction in movement skills, combinations and continuities in free exercise, and tumbling as performed on various gymnastic apparatus.

Hatha Yoga
A self-discipline designed to improve the efficiency of all body systems. Instruction and practice in asanas (movement patterns), techniques for complete breathing, and total body relaxation.

Physical Fitness
Instruction in the necessities of life-long physical fitness. May include a cardio-vascular efficiency program of walk-jog-run, rope jumping, exercises for specific parts of the body, such as the back and abdominal areas. Nutrition and diet will also be taught.

Raquet Ball
Instruction in the basic skills and playing strategy. Students will play singles and doubles matches. This life-long activity develops speed, agility, coordination, and, especially, endurance. Course is taught at the Williamsport YMCA.

Roller Skating
Roller-skating is a rapidly growing, lifetime carry-over activity for both male and female – young and old. This fundamental course is designed to give each and every individual an opportunity to learn and develop the necessary skills to enable them to enjoy this popular sport.

Scuba Diving
Instruction and practice for the swimmer in basic diving techniques and the use of scuba equipment to meet the certification requirements as an Open Water Diver as prescribed by the Professional Association of Diving Instructors. Course is taught at the Williamsport YWCA.

Square Dance
Instruction in basic and advanced square dance steps, movement patterns, and terminology as applied to squares, longway sets, and mixers.

Swimming, Beginning
Instruction and practice for the non or novice swimmer in fundamental water safety survival skills, basic swim strokes, and non-swimming forms of rescue. Course is taught at the Williamsport YMCA.

Weight Training
Instruction in a developmental progressive program using the Universal Gym in either a 70% muscle building (male) or a 50% muscle toning (female) category. May include a cardio-vascular efficiency program in jogging, rope jumping, or running in place.

PED 161
ADVANCED LIFESAVING
Instruction and practice in the skills necessary to meet the requirements for certification in American Red Cross Advanced Lifesaving. The course includes some applicable basic first aid and information pertaining to swimming environments. Course is taught at the Williamsport YMCA. 2 Cr. (1-2).

PED 201
PERSONAL AND COMMUNITY HEALTH
Discussions of up-to-date, pertinent information concerning personal and community health problems of today's college student. The following topics will be included: mental health and personality development; human sexuality, marriage and parenthood; physical fitness and nutrition; and alcohol, tobacco, and drugs. 2 Cr. (2-0).

PHYSICS (PHS)

PHS 100
PHYSICS—MECHANICS
Lecture, demonstrations, problem-solving course in elementary mechanics; basic concepts of scientific method; the metric systems; vectors, translatory motion; rotary motion, work, power, energy; physical properties of liquids, solids, gases. 4 Cr. (3-3). *Prerequisites: MTH 103 or equivalent. MTH 104 background is desirable and is recommended to be taken prior to or concurrent with PHS 100.*

PHS 101
PHYSICS—HEAT AND LIGHT
Basic principles of heat and its measurements: thermometry, calorimetry, expansion of liquids, solids, and gases, transfer of heat; study of light including refraction, illumination, optics and color. 4 Cr. (3-3). *Prerequisite: MTH 103 or equivalent. PHS 100 is recommended.*

PHS 102
PHYSICS—ELECTRICITY AND MAGNETISM
Fundamental concepts of electrostatics, electrolysis; AC and DC circuits, magnetism; electromagnetic induction; basic principles of electricity. 4 Cr. (4-0). *Prerequisite: PHS 100.*

PHS 106
INTRODUCTION TO METALLURGY
Introduction to science of physical metallurgy; chemical composition, crystallization, effects of mechanical treatment: drawing, rolling, shaping; thermal or heat treatment. 4 Cr. (4-0). *Prerequisite: PHS 100 is recommended.*

PHS 112
INTRODUCTORY PHYSICS
Fundamental laws and properties of matter, mechanics, heat and light with special emphasis on electricity and magnetism. 4 Cr. (3-3). *Prerequisite: High school algebra.*

PHS 116
GENERAL PHYSICS I
Principles of mechanics and heat. Calculus will be used whenever this method leads to a more direct solution. 4 Cr. (3-3). *Corequisite: MTH 238.*

PHS 122
RADIATION PHYSICS
The fundamentals of electrical and radiation physics and the principles underlying the operation of X-ray equipment and auxiliary devices. 3 Cr. (3-0). *Prerequisite: PHS 112.*

PHS 126
GENERAL PHYSICS II
Continuation of PHS 116. Principles of electricity, magnetism, wave motion, optics and sound. 4 Cr. (3-3). *Prerequisite: PHS 116. Corequisite: MTH 248.*

PHS 202
MECHANICS
Intermediate course in kinematics and dynamics. Differential and integral calculus are used extensively in derivations and problems. 4 Cr. (3-3). *Prerequisites: PHS 126 and MTH 248.*

PHS 236
MODERN PHYSICS
Atomic and nuclear physics including structures of atom and nucleus, radioactivity; fission and fusion; relativity; and the periodic table of elements. 4 Cr. (3-3). *Prerequisites: PHS 126 and MTH 248.*

PHS 500
PHYSICS SURVEY
Covers most of the following topics, selected to meet the needs of the majority of students in any particular section: matter and measurement; behavior of solids, liquids, and gases; mechanics, including forces, motion, energy, power, and machines; heat; sound; light; optics; magnetism; electricity; atomic phenomena. 3 Cr. (3-0). *Prerequisite: MTH 710 or equivalent.*

PLUMBING AND HEATING (PLH)

PLH 711
PLUMBING AND HEATING I (8 weeks)
This course is designed to acquaint the student with the plumbing and heating trade. The use of hand and power tools of the trade. Materials of trade, i.e., cast iron, copper, plastics, galvanized steel and black iron, etc. Plumbing systems such as venting—drainage—public and private sewage systems and house services. (Excluding heating systems.) 6 Cr. (6-18).

PLH 712
PLUMBING AND HEATING II (8 weeks)
Theory and lab projects to demonstrate materials and methods used for installing domestic hot and cold water systems (excluding heat); well pump theory, installation and maintenance; set, trim and maintain basic plumbing fixtures. 6 Cr. (6-18).

PLH 721
PLUMBING AND HEATING III (8 weeks)
Introduction to residential blueprint reading and pipe sketching; material estimates and ordering; installation and repair of residential fixtures; design and construction of individual projects. 6 Cr. (6-18).

PLH 722
PLUMBING AND HEATING IV (8 weeks)
Introduction to commercial blueprint reading and isometric pipe sketching; material estimates and ordering; installation and repair of commercial fixtures; design and construction of cooperative group projects. 6 Cr. (6-18).

PLH 832
PLUMBING AND HEATING VI (8 weeks)
This course is designed to develop the basic skills required to lay out, size, and install the various Hydronic Hot Water Systems for residential and commercial installations. For gas, oil, and coal fired systems. 6 Cr. (6-18).

PLH 833
PLUMBING AND HEATING V (8 weeks)
This course is designed to develop the basic skills required to calculate heat loss for residential and commercial installation. Practicum involves calculating, designing, and laying out hot water heat system. Use of lead working tools, introduction to lead wiping, and pipe bending. Introduction to acetylene welding, cutting and silver soldering. 7 Cr. (8-16).

PLH 841
PLUMBING AND HEATING VII (8 weeks)
This course is designed to give the student an in-depth working knowledge of steam heat systems, boilers, accessories, traps, venting, heat distributing units and safety devices. Practicum offers the student an opportunity to design, lay out and actually install functioning steam mini-systems. System maintenance and troubleshooting is emphasized. 6 Cr. (6-18).

PLH 842
PLUMBING AND HEATING VIII (8 weeks)
Designed to prepare the student to enter the trade work force. Emphasizes techniques to open-the-door, clinch the job, and maintain employment. An effort will be made to secure gainful employment in the trade for each student. Practicum will involve compilation of letters of introduction, compilation of resumes. The use of sheet metal hand tools, materials and supplies, the functions of hot air heat systems and installation of actual hot air heat systems will be offered. The student will be introduced to the practical application of solar heating. Solar energy collection, storage and conversion to sensible heat will be employed. Actual on the job plumbing and heating will be performed. 6 Cr. (6-18).

PRACTICAL NURSING (NUR)

NUR 710
FOUNDATIONS OF NURSING
Basic nursing knowledge and skills common to all areas of nursing practice. Emphasizes the basic needs of patients, utilizing individual patient situations, including physical hygiene, comfort, rest, nutrition; the process of developing, implementing, and evaluating nursing care plans is studied and used in patient care. Includes mental health concepts, rehabilitation needs, communication skills, drug preparation and administration, body mechanics, safety practice and basic concepts of asepsis. 12 Cr. (6-18).

NUR 711
NURSING RELATIONSHIPS
Orientation to the program; the learning process; communication skills; concepts of health; major health problems and agencies; trends in nursing; roles and characteristics of nurses; nursing organizations; legal and religious implications; range and scope of functions of the nurse; administrative lines; fundamentals of ethical, psychological, social and human relationships. 3 Cr. (3-0).

NUR 712
SCIENTIFIC PRINCIPLES RELATING TO NURSING
The location, description, and function of gross anatomical structures; common pathogens, their characteristics and methods of control; common elements found in the body and their relation to the body in health; the relation of physical properties to the functioning body; the process of metabolism and homeostasis; psycho-social and economic factors related to nutrition and dietary patterns, nutritional needs at all ages and under various conditions, the relation of nutrition to health; associated vocabulary. 6 Cr. (6-0).

NUR 723
MEDICAL-SURGICAL NURSING—ELEMENTARY (15 weeks)
Principles of patient care dealing with general medical and surgical conditions. Emphasis on the adult patient in relation to his or her needs; the cause, treatment, and the prevention of illness; the nursing care involved. The student will be expected to function progressively as a contributing member of the nursing team, and to develop and carry out patient centered care plans geared to patient needs. Added skills are acquired in nursing procedures. 9 Cr. (6-18). (15 weeks-lecture/7 weeks-lab). *Prerequisite: NUR 710, NUR 711 and NUR 712.*

NUR 724
PARENTAL AND CHILD HEALTH (15 weeks)
Focuses on the concept of the family as a unit of society. Helps prepare the student for patientside experiences with prenatal, intrapartum and post partum mothers, and the well and ill child. Growth and development, history, current trends, and community agencies in parental and child health are included. Deviations from normal are considered, but the emphasis is on normal aspects. The student participates in the care of these individuals. 9 Cr. (6-18). (15 weeks-lecture/8 weeks-lab). *Prerequisite: NUR 710, NUR 711 and NUR 712.*

NUR 735
MEDICAL-SURGICAL NURSING—INTERMEDIATE (15 weeks)
Continuation of NUR 723. Further develops the knowledge and skills which enable the student to provide nursing care which meets the needs of patients of all ages with major health problems. Development of skills in assisting with critically ill, unconscious, moribund and mentally ill patients. 18 Cr. (12-18). *Prerequisites: NUR 723 and NUR 724.*

NUR 736
PRACTICUM
Students will be assigned to the cooperating institutions for three weeks to further develop skills in nursing procedures and patient care. 2 Cr. (0-75). *Prerequisite: NUR 735.*

PSYCHOLOGY (PSY)

PSY 111
GENERAL PSYCHOLOGY
Introduction to the science of human behavior. 3 Cr. (3-0).

PSY 201
ABNORMAL PSYCHOLOGY
Principal forms of mental and emotional disorders with emphasis on their causes, symptoms, and courses of treatment. Goal to study normal behavior by examining such behavior in distortion or in exaggeration. 3 Cr. (3-0). *Prerequisite: Permission of the instructor.*

PSY 203
DEVELOPMENTAL PSYCHOLOGY
Psychological development and change throughout the life span, with emphasis on basic principles of child and adolescent development, genetic and environmental influences on the course of physical, motor, intellectual, emotional, social, and personality development. 3 Cr. (3-0). *Prerequisite: PSY 111.*

PSY 231
EDUCATIONAL PSYCHOLOGY
Psychological principles and concepts applied to learning. Individual differences, motivation and emotion. 3 Cr. (3-0). *Prerequisite: PSY 111 or permission of the instructor.*

PSY 241
SOCIAL PSYCHOLOGY
Interaction of individuals in their several group relations, the contacts of harmony, and conflict within groups as well as between groups, group leadership and group controls, phenomena of imitation and suggestion. 3 Cr. (3-0). *Prerequisite: Permission of the instructor.*

PSY 290
SPECIAL STUDIES IN PSYCHOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1-3-0).

R

RADIOLOGIC TECHNOLOGY (RAD)

RAD 110
RADIOLOGIC TECHNOLOGY I
Basic concepts of ethical principles and medical structure. Chemical constituents of processing a radiographic film and efficient darkroom (processing) procedures. Theoretical and practical instruction on radiographic positioning of body structure and organs. Manipulation of exposure factors pertaining to milliamperage, kilovolts, distance, and time. 5 Cr. (3-13).

RAD 120
RADIOLOGIC TECHNOLOGY II
Theory of x-ray technique. Necessity of different radiographic views to avoid superimposition of structure. The involvement of contrast media in relation to reactions, and contraindications to these media. Emphasis on nursing procedures as they relate to radiology. 7 Cr. (4-16). *Prerequisite: RAD 110.*

RAD 200
SUMMER INTERNSHIP
Required internships to establish eligibility for registry examination. Internships to be arranged with affiliated hospitals. 0 Cr.

RAD 230
RADIOLOGIC TECHNOLOGY III
Create a working combination or establish a new combination of exposure factors using x-ray components to produce an interpretive film. Advanced positioning of special radiographic views to demonstrate various anatomical parts. Introduces the operating suite with relationship of medical aseptic technique and radiographic procedures. Emphasis on technical special radiographic procedures. 10 Cr. (5-15). *Prerequisite: RAD 120.*

RAD 240
RADIOLOGIC TECHNOLOGY IV
Organization, supervision, law, and finance related to radiology. Emphasizes handling diseased and injured patients. Introduces the role of radiation therapy in treatment of disease, effects on body tissue, and the methods of radiation therapy. Basic concepts of scientific research. 10 Cr. (5-15). *Prerequisite: RAD 230.*

REAL ESTATE (RES)

RES 112
REAL ESTATE FUNDAMENTALS
This course is a basic introduction to the field of real estate. It emphasizes the legal aspects of real property ownership and lease arrangements and the instruments commonly used in property transactions. The functions performed by both the real estate broker and the salesperson and the procedures used are included. Real estate law, both as it pertains to real estate transactions and the licensing law is covered. This course can be applied toward the salesperson's license. 3 Cr. (3-0).

RES 113
REAL ESTATE LAW
This course covers the legal aspects of buying, selling, and holding real estate. This course can be used for the salesperson's license. 3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

RES 114
REAL ESTATE APPRAISAL
Elementary principles and practices of appraising residential real estate, with in-depth study of the three approaches used to arrive at estimated value. 3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

RES 115
REAL ESTATE PRACTICE
The purpose of this course is to help students develop and learn to apply the skills needed to sell real estate. Students taking this class will learn a great deal about interpersonal relationships — how people act, react, and interact with each other. Students will also, within the framework of the classroom, be required to practice the skills they learn. There will be emphasis both on the practical aspects of selling — how to fill out a contract — as well as less tangible aspects — how to go about getting buyers and sellers to the stage where they are willing to fill out a contract. 3 Cr. (3-0).
Prerequisite: RES 112 or Division permission.

RES 116
REAL ESTATE FINANCING
This course will train the average real estate salesperson to put together a money package to successfully close a real estate deal. This course will also acquaint students with sources of funds available, methods to be used, and regulations to be aware of in purchasing, selling, or acting as an agent to sell real estate. 3 Cr. (3-0).
Prerequisite: RES 112 or Division permission.

RES 117
REAL ESTATE MANAGEMENT
This course introduces the student to the basic managerial theories and strategies relating to the real estate field. This course can be used for the real estate broker's license. 3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

RES 119
REAL ESTATE MATH
This course covers the basic mathematics used by real estate professionals. Course credits can be applied only toward the broker's license. However, the subject matter covered is ideal as a review for individuals taking the salesperson's exam. 3 Cr. (3-0).
Prerequisite: RES 112 or Division permission.

RES 120
REAL ESTATE TAXES
This course will emphasize the basic tax structure in our economy as it relates to the real estate field. This course can be used for the salesperson's and broker's license. 3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

RES 212
REAL ESTATE PRINCIPLES
This course is a more advanced and in-depth study of the principles of financing, transferring property, contracts, various types of ownership as they relate to real estate. This course can be used for both the salesperson's and broker's license. 3 Cr. (3-0). *Prerequisite: RES 112 or Division permission.*

S

SECRETARIAL SCIENCE (CLS & SEC)

CLS 717
CLERICAL PROCEDURES
Office procedures and management of general office situations. Includes handling mail, filing, reception work, office machines, office communication systems, development of personal qualities necessary for success, self-evaluation, good working habits and attitudes, and personality development. 7 Cr. (5-6).

CLS 728
CLERICAL WORKSHOP
Includes instruction in the typewriting of reports, office forms, statistics, and other production work. Instruction in the use of the more common types of duplicating equipment is given. Students will operate the mimeograph and spirit duplicating machines and become familiar with the more common dictation and transcription equipment used in offices. Simulated office assignments and situations are incorporated into the program. 8 Cr. (6-6). *Prerequisites: CLS 717, SEC 111.*

SEC 111
TYPEWRITING I
Develops a foundation in the skill of typewriting. Includes familiarization with the typewriter, development of proper attitudes, fundamentals of touch typewriting, improvement of speed and accuracy, business letters, tabulations, and typing of numerous forms. 3 Cr. (2-3).

SEC 114
SHORTHAND I
Basic theory and techniques of Gregg Shorthand, Diamond Jubilee Series. Emphasizes outlines, proper techniques, and attainment of fluency in reading and writing shorthand. Dictation is given at 60+ words per minute for three minutes, to be transcribed with a 95+ percent level of accuracy. 3 Cr. (2-3).

SEC 121
TYPEWRITING II
Furthers the student's ability in typewriting. Emphasizes production typing, tabulation, special skill techniques, advanced letter writing, typing forms and documents, and other routine typewriting duties. 3 Cr. (2-3). *Prerequisite: SEC 111 or test qualification.*

SEC 124
SHORTHAND II
Continuation of SEC 114. Emphasizes the development of skills in taking dictation and transcription. Typewritten transcription is included. Dictation is given at 80+ words per minute for three minutes, to be transcribed with a 95+ percent level of accuracy. 3 Cr. (2-3). *Prerequisite: SEC 114 or test qualification.*

SEC 129
SECRETARIAL PROCEDURES
Introduction to the responsibilities and the opportunities of the secretarial position. Emphasizes administrative aspects of secretarial work. Includes office forms, mailing operations, filing, communications, business machines, duplicating processes, and dictating and transcribing machines. 3 Cr. (2-3).

SEC 231
TYPEWRITING III
Designed for the typist with a sustained, high level, accurate, straight copy speed. Provides an opportunity to master basic typing arrangements, to review and apply technical information, and to develop creativeness and originality. Includes higher levels of executive typing – following directions, editing copy, composing letters, creating arrangements of tables, and other involved typewriting projects. 3 Cr. (2-3). *Prerequisite: SEC 121.*

SEC 232
WORD PROCESSING I
This course is designed to train entry-level word processing operators on various types of power typewriters and output devices. Operation of mag card, tape, and electronic typewriters is covered. Training is also provided on stand-alone communicating machines using floppy disks and CRT screens. Operation of a communicating ink-jet printer is included.
3 Cr. (3-0). *Prerequisite: SEC 111 or SEC 509.*

SEC 234
SHORTHAND WORKSHOP
Intensive review of advanced Gregg Shorthand with emphasis on executive, legal, or medical vocabulary. Dictation is given at 100+ words per minute for three minutes, to be transcribed with a 95+ percent level of accuracy. Students are given intensive training in the transcription of letters and specialized forms. Development of supplemental skills necessary for secretarial responsibilities is emphasized. 6 Cr. (4-6). *Prerequisite: SEC 124.*

SEC 244
SECRETARIAL WORKSHOP
Integrates all phases of advanced dictation, transcription, and secretarial skills. Dictation is given at 100+ words per minute for three minutes, to be transcribed with a 98+ percent level of accuracy. Includes intensive office-level practice. 8 Cr. (5-9). *Prerequisite: SEC 234.*

SEC 245
OFFICE INTERNSHIP
Practical experience obtained through work assignments in offices. 1 Cr. (0-5).

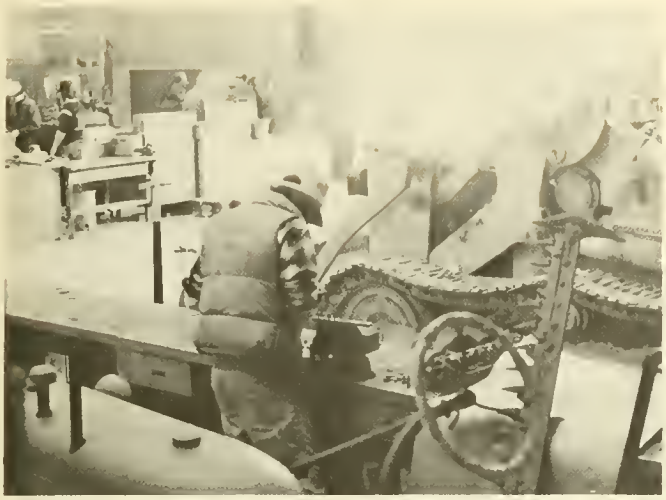
SEC 509
TYPEWRITING
For non-business students. Includes touch typewriting, speed and control, familiarization with business letters, reports and forms, and personal typewriting. 1 Cr. (0-3).

SERVICE & OPERATION OF HEAVY CONSTRUCTION EQUIPMENT (SOE)

SOE 713
SERVICE AND OPERATION I (8 weeks)
Introduction to heavy equipment mechanics, starting with basic tools, micrometers, lifting equipment, and progressing into complete engine nomenclature and overhaul. 7 Cr. (7-18).

SOE 714
SERVICE AND OPERATION II (8 weeks)
Basic vehicle electrical systems including electro-magnetism, ignition circuits, starting circuits, and electric troubleshooting. 7 Cr. (7-18).

SOE 725
SERVICE AND OPERATION III (8 weeks)
Introduction to the maintenance and repair of diesel engines, various types of clutches, gear type transmissions, and differentials. Maintenance of seals and anti-friction bearings. 7 Cr. (8-17).



SOE 726
SERVICE AND OPERATION IV (8 weeks)
Introduction to the maintenance and repair of final drives, undercarriages, tracks, and tires. Maintenance and repair of brake systems. 7 Cr. (8-17).

SOE 837
SERVICE AND OPERATION V (8 weeks)
Introduction to the various types of hydraulic systems used on heavy construction equipment including pumps, motors, valves, cylinders, etc. 7 Cr. (8-17).

SOE 838
SERVICE AND OPERATION VI (8 weeks)
Introduction to the service, repair, testing, and troubleshooting of torque converters and power shift transmissions. Introduction to the hydrostatic transmission and testing of the hydrostatic transmission. Advanced electrical circuits and troubleshooting. 7 Cr. (8-17).

SOE 847
SERVICE AND OPERATION VII (8 weeks)
Introduction to basic construction surveying, construction blueprint reading, and grade stake reading. Operation of various types of heavy construction equipment such as dozers, loaders, motor graders, and scrapers. Service of the machines operated. 6 Cr. (6-19).

SOE 848
SERVICE AND OPERATION VIII (8 weeks)
A continuation of SOE 847 emphasizing the development of skills as an equipment operator or mechanic. 6 Cr. (6-19).

SIGN PAINTING (SIG)

SIG 711
SIGN PAINTING I
Introduction to sign painting as related to the basic alphabet, the drawing alphabet and the fundamentals of alphabets. Use, care, and understanding of sign painting tools and materials. Emphasis in the development of skill with a variety of brushes. 10 Cr. (3-22).

SIG 721
SIGN PAINTING II
Emphasis on laying out and painting, paper signs, and showcards. Instruction in commercial signs, truck and window lettering is provided. Use of tempera and bulletin colors is covered. 10 Cr. (3-22).

SIG 811
SIGN PAINTING III
During the advance phase, billboard lettering, commercial signs and pictorial work are covered. Use of bulletin colors and lettering quills is introduced in this segment of instruction. 10 Cr. (3-22).

SIG 821
SIGN PAINTING IV
Designed to allow the student to continue practicing showcard layout and commercial signs. Gold leaf applications, glass, and surface gilding are covered. 10 Cr. (3-22).

SMALL ENGINE REPAIR (SER)
Courses offered at Lewisburg Federal Penitentiary.

SER 711
SMALL ENGINE REPAIR (12 weeks)
The Small Engine Repair course is designed to give the individual a saleable skill in the field of small engine repair. Repair and maintenance of engines commonly used in lawn mowers, boat motors, snowmobiles, chain saws, and others in this classification are covered. 14 Cr. (10-25).

SOCIOLOGY (SOC)

SOC 111
INTRODUCTION TO SOCIOLOGY
An introduction to the basic concepts and methods used in studying the group life of human beings. 3 Cr. (3-0).

SOC 112
GENERAL ANTHROPOLOGY
Survey of the physical and cultural evolution of humans and society. Emphasizes the relationship of the human physical structure to behavior and comparative descriptions of recent primitive societies. 3 Cr. (3-0).

SOC 121
INTRODUCTION TO SOCIAL WORK
Basic concepts of social welfare programs, social case work, and field work. Especially designed for students planning a career in social work. 3 Cr. (3-0). *Prerequisite: SOC 111.*

SOC 231
MARRIAGE AND THE FAMILY
Examination of traditional and contemporary American marital and family relationships. 3 Cr. (3-0). *Prerequisite: SOC 111.*

SOC 241
URBAN SOCIOLOGY
The concept of community as it operates and affects individual and group behavior in rural, suburban, and urban settings. Emphasizes characteristic institutions and problems of modern city life. 3 Cr. (3-0). *Prerequisite: SOC 111.*

SOC 242
CRIMINOLOGY
The social relationships and situations involved in the causes and prevention of crime and juvenile delinquency. Particular emphasis on the functioning of the U.S. criminal justice system. 3 Cr. (3-0). *Prerequisite: SOC 111.*

SOC 290
SPECIAL STUDIES IN SOCIOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

SPANISH (SPA)

SPA 111
BEGINNING SPANISH I
Basic grammar and language structure. Comprehension, speaking and reading, with particular regard to pronunciation and accent. 3 Cr. (3-0).

SPA 121
BEGINNING SPANISH II
Continuation of SPA 111. 3 Cr. (3-0). *Prerequisite: SPA 111.*

T

TOOL DESIGN TECHNOLOGY (TDT)

TDT 231
TOOL DRAFTING (8 weeks)
Transition between mechanical drafting and tool design; drawings, techniques; purchased parts; standards of shop drawings; material lists; design of cutting tools. 4 Cr. (4-12). *Prerequisite: EDT 112.*

TDT 232
FIXTURE DESIGN (8 weeks)
Design of leaf and tumble jigs, plain and index milling fixtures, vise jaws, chuck jaws, lathe fixtures, and adaptor plates. 4 Cr. (4-12).

TDT 241
GAGE DESIGN AND PROGRAMMING (8 weeks)
Writing programs for point to point and contouring tape controlled machines; design of plug, snap, ring, flush pin depth, length, and indicating gages. 4 Cr. (4-12). *Prerequisite: EDT 112.*

TDT 242
DIE DESIGN (8 weeks)
Designing of cutting, forming, drawing, and cavity dies; simple progressive and compound arrangements. 4 Cr. (4-12).

W

WELDING (WEL)

WEL 701
ACETYLENE WELDING
Selected units in basic acetylene welding for plumbing students. 2 Cr. (0-5).

WEL 703
ELECTRIC WELDING
Selected units in basic electric welding for plumbing students. 2 Cr. (0-6).

WEL 712
ACETYLENE WELDING
Theory and practice welding of sheet metal and mild steel plate; oxyacetylene cutting; pipe welding, welding and brazing of ferrous and non-ferrous metals; weld testing; shop safety. 13 Cr. (7-18).

WEL 722
ELECTRIC WELDING
Principles and applications for basic electric welding using various types of electrodes for welding of steel plate in all positions, pipe welding; cast iron welding, weld testing. 13 Cr. (7-18)

WEL 832
INERT GAS WELDING
Theories and practices of manual inert gas shield technique (TIG) and short arc, high speed, semi-automatic, metallic arc process (MIG). 13 Cr. (7-18).

WEL 842
WELDING (ADVANCED)
Practical theory and application of weldments of specifications of AWS, API and ASME codes; all position welding of heavy plate and pipe; testing and weld specimens. 13 Cr. (7-18).

WOOD PRODUCTS TECHNOLOGY (WPT)

WPT 111
WOOD PROPERTIES AND UTILIZATION
Physical properties, identification and use of wood, including an understanding of machining and fabrication of major wood products of commercially important species. 3 Cr. (2-3).

WPT 121
LUMBER AND LOG GRADING
Separation of hardwood and softwood lumber to grades that are acceptable to wood industry standards. Separation of hardwood and softwood logs to correspond to lumber grade to insure that the quality of lumber sawn will be maximized. 3 Cr. (1-6).

WPT 122
SAWMILLING I
Identification and layout of major parts of a sawmill. Maintenance and safe operation of the equipment involved in the sawing of logs into lumber. 3 Cr. (1-6).

WPT 123
LUMBER DRYING
The process of drying lumber by natural or artificial methods, including layout of lumber yard, dry kiln operation, and the handling and storage of green lumber. 3 Cr. (2-3).

WPT 231
WOOD INDUSTRY CO-OP/INTERNSHIP
Practical experience gained by a planned and supervised program of work with a wood products industry. 3 Cr. (200 Hr.)

WPT 232
SAWMILLING II
A continuation of Sawmilling I with emphasis on gaining skill in the sawing of lumber to grade in a safe and economical manner. 3 Cr. (1-6).

WPT 233
QUALITY CONTROL
A study of the characteristics of selected sawmill products, air and kiln dry products, veneer and plywood, composition board, furniture and cabinetry, and chemically treated wood products. Includes the methods and equipment used to measure these characteristics and the practical use of quality control data in the wood industry. 3 Cr. (2-3).

WPT 243
PRODUCTION MANAGEMENT
Introduces the student to the process of procurement, manufacturing, and marketing of wood products in order to produce a profit. 3 Cr. (2-3).

WPT 244
EQUIPMENT AND MACHINERY
A survey of the basic types of machinery used in wood processing and their relationship to the profitable management of a business. 3 Cr. (2-3).

Student and Career Development Services

Orientation

Prospective students at WACC participate in an orientation program designed to provide positive feelings about the College and to introduce them to the college community and its various services and activities. Students are placed in appropriate academic courses and registered for their first semester. This process aids the student in becoming aware of the College community and promotes involvement in various activities.

Counseling and Career Development

Counseling and Career Development is located in Room 157, Learning Resources Center, adjacent to the Library. Counseling and Career Development houses a wide variety of occupational and educational information, including pamphlets, booklets, film strips and other career library resources. Staff members are available to work with individuals as they use these materials and to provide counseling for those who need assistance in career decision making. Other services include programs in resume writing, interview training, and job search strategies. Counseling and Career Development is open to both students and non-students.

The Counseling and Career Development staff is available to help students with personal, academic, and career problems.

Advisors: Each student is assigned an advisor who will assist in setting up a schedule of courses. The advisor is usually an instructor in the student's program area. Students should discuss academic concerns or problems with their advisor.

Counselors: Counselors are available to aid the student in the resolution of many types of problems. Such problems may involve social, emotional, vocational, and personal concerns. The student is the focal point of the process. Any need which is perceived by the student as important will be viewed in the same way by the counselor. Discussion and information shared with a counselor will be held in confidence.

College Transfer

Counseling and Career Development will provide assistance to students who need advice in transferring to other educational institutions. We keep a complete file of College catalogs and also have statistics on various programs into which our students have transferred.

Placement

Placement services are designed to aid the prospective graduate who is seeking employment, alumni interested in career and employment information, and students who want to work part-time while attending College. The Placement Office maintains a file of full and part-time job opportunities as well as addresses of prospective employers. A library of company literature and applications is maintained in the office for students' use. Information on full and part-time job openings is also published regularly in The SPOTLIGHT (student newspaper).

The Placement Office schedules on-campus interviews for companies which come to the College to recruit prospective graduates. Companies recruiting on campus include a number of leading industries from across the country. On-campus recruitment usually takes place from September through December and from February through April. Information on these interviews is announced in The SPOTLIGHT and in the New Week News.

Placement seminars are held each semester, just prior to graduation for prospective graduates. During these seminars sample letters of application and resumes are distributed. Students learn how to prepare for job interviews and receive information on employment trends in various parts of the country. During the seminars, students also provide the Placement Office with information for their placement files at the College.

The Placement Office also publishes a graduate placement report each year in October. The report shows the number of students, by program, who have obtained jobs and the average salaries of graduates one year after graduation. The most recent survey shows (based on an 87 percent return rate) that 88 percent were employed or returned to college for advanced degrees. Enrolled or prospective students and other interested persons may review this report in the Placement Office, Klump Academic Center, Room 209.

Vocational Diagnostic Program

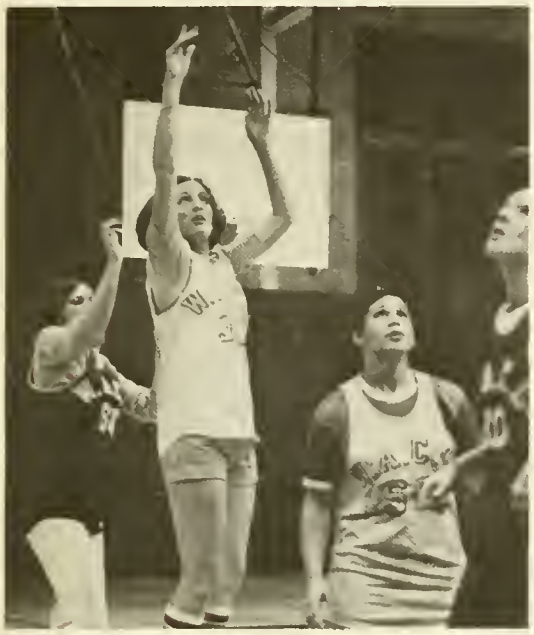
Making career decisions can be difficult and confusing. The Vocational Diagnostic Program offers individuals a structured method by which they can obtain more information about themselves and their abilities. It includes testing, counseling, and job trials in certain college curriculum areas. For fees and additional information, write or phone:

Vocational Diagnostic Program
Counseling and Career Development
The Williamsport Area Community College
1005 West Third Street
Williamsport, PA 17701
(717) 326-3761, ext. 246

Tot Watch

Supervised Tot Watch services are provided on campus from 8:00 a.m. to 4:00 p.m. during the fall and spring semesters. Students with pre-school children age 2½-5 may use these services for a nominal fee. Evening Tot Watch is available from 5:45 to 10:15 p.m., Monday through Thursday during the spring and fall semesters. Students with children age 4-8 may use these services for a nominal fee. For regulations and additional information, write or phone:

Tot Watch
The Williamsport Area Community College
1005 West Third Street
Williamsport, PA 17701
(717) 326-3761, ext. 329



The time you will spend outside the classroom will be an important part of your college life. You are encouraged to participate in the social, cultural, educational, vocational, and recreational activities which augment the instructional program.

Army Reserve Officers Training Corps (ROTC)

WACC students may enroll in the Army's Reserve Officers' Training Corps (ROTC) Program offered through a cross enrollment provision with Bucknell University. All qualified Freshmen and Sophomore men and women are eligible to enroll, without obligation, in the basic course and can compete for full tuition and fees Army ROTC scholarships.

The advance course—the Junior and Senior years—will be taken at a four year institution after the student transfers. Veterans of enlisted service with any of the Armed Forces may qualify for a special advanced course program leading directly to a commission in the Pennsylvania Army National Guard upon graduation from WACC or a commission on Army active duty after completion of undergraduate studies elsewhere.

Successful completion of Army ROTC will be entered upon the student's permanent academic record but WACC will not grant academic credit.

For additional information on the Army ROTC program contact the Director of Student Activities and Placement, Klump, Room 209.

Athletics

We believe that a well-balanced program of intramural and intercollegiate sports plays an important role in the overall educational program.

At present, the College has basketball (men's and women's), wrestling, cross country, golf, field hockey, and tennis teams that compete on an intercollegiate level.

Intramurals provide an opportunity to participate in active competition to improve physical strength and skill, to pursue leisure time activities, and to develop friendships. The Physical Education staff conducts a variety of intramural athletic leagues for men and women. Activities include basketball, bowling, golf, handball, horseshoes, soccer, softball, table tennis, touch football, track and field, volleyball, wrestling, and others.

Cheerleading

This activity is under the direction of a faculty member. Announcements of tryouts are made each fall. Cheerleaders are selected on the basis of skill, poise, personality, and enthusiasm.

College Colors and Nickname

The College colors, gold and burgundy, and the nickname, Wildcats, were selected by popular vote of the students.

Clubs

New student clubs and organizations are constantly being formed. The following clubs are currently recognized on the WACC campus:

Agribusiness Club
Alpha Omega Fellowship
Alpha Pi Delta (Architectural) (inactive)
Alumni Association
Artists Unlimited
Chi Gamma Iota (Veterans) (inactive)
Cinema Club
Circle K
Civil Engineering Technology Club
Communications Club
Computer Science Club
Diesel Power Club (inactive)
Food & Hospitality Student Management Organization
Forest Technician Association
Gamma Epsilon Tau (Graphic Arts)
Horticulture Technicians Association
Inter-Club Council
Mechanical Engineering Club
Northcentral Pennsylvania Chapter of the Construction Specifications Institute
Outing Club
Phi Beta Lambda (Business)
Rifle and Pistol Club
Service and Operation of Heavy Equipment Association
Ski Club
Sports Car Club (inactive)
SPOTLIGHT Staff
Student American Dental Hygienists Association
Student Government Association
Student Nurses of WACC (SNOW)
Student Society of Manufacturing and Engineering
Theater Company (inactive)
Varsity Club
Yearbook (Montage) Staff

Publications

The SPOTLIGHT is the official College newspaper published at regular intervals throughout the college year.

Montage is the College yearbook which provides a pictorial account of the school year with a focus on the graduating class. Practical experience in writing, photography, and editorial work is available through staff membership.

The *Student Handbook* provides information on student events, regulations, and student services. The Handbook also includes a calendar of student activities.

New Week News is a newsletter issued several times weekly which keeps the student body and faculty informed on current issues, announcements, programs, and activities that affect the College.

WACC After Dark is a newsletter issued every other week by the Center for Lifelong Education. The newsletter includes information on courses, programs, and activities for evening students.

Social/Cultural/Recreational Activities

Students at The Williamsport Area Community College have the opportunity to participate in a wide variety of activities sponsored by various College groups. These include:

—The Student Government Association sponsors dances, Fall and Spring Week Activities, and other social events.

—The Special Events Committee sponsors programs ranging from lectures to the annual Bluegrass Festival.

—The Student Activities Office schedules recreational activities, including skiing, roller and ice skating, tobogganing, and swimming.

—Student clubs and organizations sponsor special activities. For example: the Cinema Club sponsors a weekly movie series and the Outing Club sponsors canoeing and camping trips. Various service projects throughout the year are sponsored by campus clubs.

Student Government

The Student Government Association (SGA) is the student governing body of the College. Its purpose is to provide maximum opportunity through a democratic, representative organization for students to promote the interests of the students and of the College. It functions within a constitution originated by the students. All students are members of SGA and are invited to attend meetings. The SGA office is located in room 136 KAC, ext. 248.

Academic Information

Classification of Students

Full-Time: A full-time student is one who carries 12 or more credits. Sixteen hours of lecture/demonstration, or 48 hours of shop/lab equal one credit equivalent.

Part-Time: A degree or certificate candidate who carries less than 12 credits per semester is enrolled as a part-time student.

Non-Degree: A non-degree student is one who does not go through the formal admissions process and therefore is not enrolled in a degree or certificate program. Such a student is permitted to select courses without regard to degree or certificate requirements.

Special Student: A rehabilitated or handicapped student who cannot perform some of the requirements in certain shop programs is awarded a special certificate. It is not awarded to a student who may have failed to meet the requirements of a certificate program. PRIOR to entrance to a program, it should be determined whether or not a student will receive a special certificate upon completion of that portion of the program which the student is able to carry. The only exception to this ruling will be the student who becomes handicapped while enrolled in a certificate program.

Students age 18 or older who do not have a high school diploma or the equivalent may also be classified as "special students."

First Year: Students who have completed a total of fewer than 24 credits are classified as first year students.

Second Year: Students who have completed a total of 24 or more credits are classified as second year students.

Satisfactory Progress: As long as a postsecondary student is officially enrolled and officially permitted to continue his/her studies toward a degree or certificate at the College, the student will be considered to be making satisfactory progress. Students receiving financial aid must meet additional criteria as explained in the Financial Aid section of this catalog (page 10) in order to continue to be eligible to receive financial aid.

Registration

Because the number of students who can register for any class is limited, all students should register for classes as early as possible. The College strongly urges all students to complete their registration, including payment of all fees, by the announced day of Late Registration for each semester. The College does not guarantee any student the right to register after Late Registration day.

Credit Load

The academic year is divided into two semesters of approximately sixteen weeks each. The normal full-time load per semester is 12 to 18 credit-hours. Students should allow an average of at least two hours preparation for each credit-hour of course work.

Credit Overload

With the exception of mandated hours in Practical Nursing and Aviation Maintenance Technician programs, students may not enroll for more than 18 credit hours in Associate Degree or Certificate programs without special permission from the student's Division Director. Summer Session overload is generally considered to be any more than two courses per session (6-8 credits). A student must have earned a 3.0 cumulative average or a 3.0 average the previous semester in order to qualify to take a course overload beyond the normal requirements in either the Associate Degree or the Certificate programs.

Fees for Students Enrolling for Overload Credits

With the exception of prescribed overloads for Practical Nursing and Aviation Maintenance Technician programs as described in the College catalog, a degree or certificate student enrolled for more than 18 credits will be charged the current student tuition rate per credit for each credit over 18.

Change of Course

After the official registration period is over, the student may make adjustments in his/her schedule through the process of adding and/or dropping courses.

Dropping a Course: A credit course dropped by the student during the first three weeks or the first 20 percent of instruction for the term will not appear on the student's academic record. From the fourth week or after 20 percent of instruction for the term to the end of the tenth week or equivalent for each term, the student may drop a College course with a grade of "W", *unless the student has been withdrawn from the course by the College for absenteeism (in which case the student will receive a grade of "WF").* A student should consult with his/her instructor and advisor prior to making the decision to drop a course. If the course is dropped beyond the tenth week (or equivalent), a grade of "WP" or "WF" will be awarded, depending upon the approval of the respective instructor and the Division Director. No credit will be given for a "WP" grade; however, a "WF" grade affects the student's grade point average in the same manner as an "F". To stop attending a class without officially dropping the course *will cause the student to receive a grade of "WF" or "F".*

Adding a Course: A student may add a course only during the first week of classes (two days in Summer Term) by having his/her advisor complete the appropriate portion of a "Student Status Change" form.

The approval of the appropriate Division Director(s) must be obtained before a change can be made.

Change of Program

Students who want to change from one program of study to another must follow the steps below.

1. Complete an admissions application for WACC transfer and submit it to the Admissions Office.

2. Complete a "Student Status Change Form;" obtain all necessary signatures, i.e., advisor, counseling, division director, and admissions. Submit the form to the Student Records Office.

When a student changes his/her program, all credits earned in the prior program will be evaluated for transfer to the new program. Any course which satisfies current requirements for the new program will appear on the transcript with the earned letter grade. The courses transferred to the new program will be used to compute the new cumulative grade point average.

Repeating a "D" or "F" Course

Students may repeat a course in which they earned a grade of "D" or "F." However, they must improve the grade of the repeated course to affect their cumulative grade-point average. If the student repeats the course at WACC and improves his/her grade, then both grades will appear on the permanent record card with the higher grade used in calculating the cumulative grade point average. If the student repeats the equivalent course at another institution and transfers the course to WACC (subject to Transfer Policy), the original grade remains on the transcript but is not included in the semester or cumulative average. If the student repeats a course and earns a second "D" or "F", the second grade and credits will not be used in calculating the cumulative grade point average.

Auditing a Course

Fees for audits will be assessed on the same basis as fees for credit courses. Auditors are not required to prepare lessons or papers or take examinations, nor do they receive credit for the course.

With the consent of the instructor and the Dean of Academic Affairs, a full-time student may enroll as an auditor in any course that has not exceeded its enrollment quota. A non-degree evening student (one who is not enrolled in a degree or certificate program) needs the permission of the Dean of Lifelong Education and the instructor to become an auditor.

Students must inform the Student Records Office that a course is being taken on an audit basis when they schedule. A student may not change from credit to audit status after the beginning of the semester.

Grading System

The college uses the following system of grading (4.00 basis) to indicate the quality of a student's work:

Grade		Grade Points
A	Superior	4
B	Above Average	3
C	Average	2
D	Below Average	1
F	Failing Work	0
W	Withdrawn	—
WP	Withdrawn Passing	—
WF	Withdrawn Failing	0
I	Incomplete	—
AU	Audit	—
SP	Satisfactory Progress	—

If a student is awarded a letter grade of "I", the instructor will submit a letter with the student's grade card stating what the student must do to complete the work and remove the "I". The instructor will also set a deadline, prior to the end of the semester following the awarding of the Incomplete, for the required work to be completed. Copies of the letter will be sent to the student and his/her advisor. A permanent "F" will be recorded if the work is not completed prior to the end of the following semester.

"SP", Satisfactory Progress, is used for certain students in Developmental Studies courses. "SP", Satisfactory Progress, will be awarded if students do not complete all course requirements but do meet the requirements for "SP" as established in the syllabus for a particular developmental course. Students earning an "SP" will re-enroll in the same course during the subsequent semester and, upon mastery of all course objectives, will earn a traditional letter grade.

Cumulative Grade Point Average

A student's cumulative grade point average is computed by dividing the number of grade points by the total number of credits for which the student has earned a grade of A, B, C, D, F, or WF.

The cumulative grade point average includes: 1) Credit for WACC courses completed by a student currently enrolled in a degree or certificate program; 2) Credit for WACC courses previously completed by a student who re-enrolls in the same program when such credits are appropriate for the new program; 3) Credit for WACC courses previously completed by a student who re-enrolls in a different program when such courses are appropriate for the new program; 4) Credit for WACC courses applied to a new program when a student changes his/her program; 5) Credit earned through Cross-Registration with Lycoming College.

The cumulative grade point average does not include:1) Credit granted for CLEP exams; 2) Advanced Placement Credit; 3) U.S. Armed Forces Institute Credit; 4) Service Credit; 5) Credit transferred to WACC from another institution; 6) Credits previously earned by a student who re-enrolls in a new program when such credit does not meet the requirements of the new program; 7) Credits previously earned by a student who transfers to a different WACC program when such credit does not meet the requirements of the new program; 8) Credits for courses in which the student received a "D" or "F" if the student repeats the course and earns a higher grade; 9) Credit for Work/Life Experience; 10) Credit earned through Credit by Exam.

Grade Reports

The College will notify, by mail, all students who are making unsatisfactory progress (D or F) in any course at mid-semester (during the fall and spring semesters). Students who receive such mid-term grades should immediately consult with their instructors and faculty advisor in an effort to improve the quality of their work. Final semester grades will be mailed after the end of the semester or summer session. The grade report will show all course work completed to date by the student. Students should check the cumulative grade report for accuracy and to be certain they are meeting graduation requirements. To protect the confidentiality of the student's record and in compliance with federal law, no grades will be given over the phone.

Since the grade report is also an unofficial copy of their transcript, students may use their grade report when an unofficial transcript is required. (For information on obtaining official transcripts, see page 9).

Withholding Grades

A student's grades and records will not be released if the student has any outstanding loans or fines at the College or if the student has outstanding obligations to the College for the return/replacement of items such as books, tools or equipment. When a hold is placed on a student's grades, the student will be notified in writing of the hold and of the action needed to release his/her grades or records.

Advanced Placement Credit

Advanced placement at The Williamsport Area Community College is designed to give students who have completed specific competencies prior to entering College the appropriate placement and credit for their accomplishments. The College believes that it has the obligation to place students at the proper educational level to insure success. Students who have completed advanced academic courses in high school, military service, or other education or training institutions and pass appropriate placement examinations will be given advanced placement consideration.

Student application and evaluation of advanced placement credit MUST BE COMPLETED prior to the student completing 12 credits. However, it is recommended that applications requesting advanced placement be submitted by March 15 for students who plan to enroll in the Fall semester, by November 15 for students who plan to enroll in the Spring semester, and by April 15 for students who plan to enroll in the Summer semester.

Students may not receive advanced placement credit for any course in which they previously received a grade of F, W, WF, or WP. Students currently enrolled in a course must apply for advanced placement prior to the end of the third week of instruction or the equivalent.

WACC recognizes the skills-training of graduates of area vocational technical schools. To verify the degree of skill a student has attained, the College may evaluate previous vocational work or may require that the student take advanced placement exams. Up to a maximum of 30 credits (academic, shop, or lab) may be granted through advanced placement.

New students will receive a schedule of advanced placement test offerings showing the date and times that tests are to be administered. The student should indicate which test(s) he/she wishes to take and return the form to the appropriate Division Office. Other students who qualify to take an advanced placement test (i.e., those who are accepted by the College and have not completed 12 credits) must make arrangements for advanced placement tests directly with the appropriate Division Office.

A copy of the evaluation of the advanced placement test will be sent to the student. Credit earned through advanced placement will be shown on the student's transcript after the student successfully completes one semester at WACC. Advanced placement credit is not used in calculating the student's cumulative grade point average.

Credit By Exam

Students may apply to take any College course by examination. In order to challenge a course by examination, a student must have completed at least one semester at The Williamsport Area Community College and have earned a grade point average of 2.0. Application to take a course by examination must be made in writing to the appropriate Division Director. Approval must then be given by the instructor(s) of the course involved and the Division Director.

If approval is received, a fee of $25 must be paid at the Bursar's Office prior to each examination. No examination will be prepared or administered until the student presents the $25 receipt. (The $25 fee will be waived for students who complete ENL 111 as a result of their work in ENL 011, Basic English.)

The examination is prepared, administered (at the time set by the Division Director), and evaluated by the instructor(s) of the course. A copy of the result of the examination will be sent to the student. When a student passes the examination for the course, the course number, title, and number of credits only will be entered on the student's transcript. (No letter grades will be listed on the transcript.) Up to a maximum of 30 credits may be earned through credit by examination. Credit by exam may not be used to remove a D, F, or WF grade. The examination in a specific subject may be taken only once.

Credit for Work and/or Life Experience

The College recognizes that many individuals acquire rich academic and technical experiences through working and/or living in a particular situation. Students who have been accepted for admittance and who feel their work or living experiences warrant consideration for academic credit should apply in writing to the Division Director responsible for the course(s) involved. The application must include evidence and rationale for granting credit.

The Division Director will appoint a committee to assess the candidate's educational and work background. The student will be asked to document his/her work and life experiences and to show that the experiences are equal to a course(s) offered at WACC. The committee will also interview the student. The committee will recommend the number of credits to be awarded.

A copy of the evaluation of work and/or life experience will be sent to the student. Credit earned through work/life experience will be shown on the student's transcript after he/she completes one semester at WACC. Credit for work/life experience will not be used in calculating the student's cumulative grade point average. Up to a maximum of 30 credits may be earned through credit for work and/or life experience.

Foreign Studies Program

The Williamsport Area Community College, in cooperation with other Pennsylvania and New York colleges, offers a limited number of credit and non-credit foreign living, work, and study programs. These programs are designed to promote international understanding and build bridges of friendship among peoples of the world. For more information on this program contact:

Dean of Student Development
The Williamsport Area Community College
1005 West Third Street
Williamsport, PA 17701
Phone (717) 326-3761, ext. 243

Cooperative Education

Cooperative Education (co-op) is the integration of classroom and laboratory study with planned and supervised periods of relevant and meaningful employment. While on co-op assignment, students work as regular employees of the co-op employer, receive vocational counseling, and earn academic credit for knowledge and/or skills acquired from their work experience. Co-op may be used to replace or supplement required courses within most programs.

The following options are available to qualified students in most programs:

1. Alternating Plan: Students rotate periods of full-time work and full-time on-campus study.

2. Parallel Plan: Students work part time and attend regular classes during the same semester or summer session.

3. Summer Plan: Students work full time during a summer session followed by a parallel plan co-op during subsequent semesters.

4. Career Advancement Plan: Students attend college on a part-time basis while working either full or part time at their regular job.

Variations of the above options are possible, depending upon job and College requirements. Co-op placements range from eight weeks to a full semester or summer of 15-16 weeks.

In order to participate in Cooperative Education, a student must have successfully completed a minimum of one full semester (12 credits) or its equivalent and must maintain a cumulative average of 2.0 or better. (A 2.5 average in courses related to the student's program is recommended.)

Employer Participation

Employers who can provide full-time or part-time positions which meet the following qualifications are encouraged to participate in the co-op program:

1. The job must provide experience in an area directly related to the student's course of study.
2. The job should provide meaningful and challenging work.

Specific information can be obtained directly from the student's academic division or by contacting:

Director of Postsecondary Cooperative Education
The Williamsport Area Community College
Room 209, Klump Academic Center
1005 West Third Street
Williamsport, PA 17701
Phone (717) 326-3761, ext. 273

Lycoming Cross Registration

The Williamsport Area Community College participates in a cross-registration program with Lycoming College. In order to cross register for courses at Lycoming College, a WACC student must obtain the permission of his/her advisor and division director, the Dean of Academic Affairs and the academic dean at Lycoming College. In order to participate in this program, WACC students must be enrolled on a full-time basis in a degree or certificate program and must not have completed more than 70 credits. Part-time students are not eligible to participate in this program. Students participating in cross-registration will be responsible for paying any special laboratory fees or charges required for the course.

Grades earned through participation in cross-registration will be recorded on the student's WACC transcript. Courses completed with a passing grade ("D" or better) will be credited toward graduation. Grades earned in courses taken at Lycoming College will be included in the student's semester and cumulative average. Students may obtain additional information on cross-registration procedures from their advisors or the Student Records Office.

Graduation Requirements

All entering students must exhibit competencies in the basic skills (reading, computation, and written expression) necessary for success in their programs. Students who have not demonstrated these competencies on the college placement tests are required to complete specific courses in order to earn a degree or certificate from WACC.

Associate Degree

The successful completion of a recommended two-year program of study (as listed in this Catalog) at The Williamsport Area Community College leads to an Associate of Applied Science, an Associate of Arts, or an Associate of Applied Arts Degree. To be eligible for an Associate Degree from The Williamsport Area Community College, the student is expected to satisfy the following:

a. Complete a recommended program of study as set forth in this Catalog. Students may substitute courses with prior written permission of the appropriate Division Director and the Dean of Academic Affairs.
b. Complete a minimum of 30 credits, including the last semester, in courses offered by The Williamsport Area Community College. Credits earned by Advanced Placement, Credit by Examination, or Life Experience may be included in the 30-credit minimum.
c. Earn at least a "C" average (2.00 cumulative grade-point average) in all courses and complete all required courses with a grade of "D" or better.
d. Satisfy health and physical education requirements as stated in a student's curriculum. A student may receive a waiver from physical education based upon the following considerations:
   1. Age - A student must be 27 years of age or over in order to obtain a waiver.
   2. Military Service - The requirement may be waived if the student was on active duty in the Armed Services of the United States for a minimum of at least one year. (See page 7 for conditions and requirements.)
   3. Physical or Medical Reasons - The requirement may be waived because of physical or medical reasons. (Student must have a statement from a medical doctor stating explicitly the reason for the waiver.)
e. Fulfill all financial obligations to the College.

Certificates

Certificates will be awarded for the satisfactory completion of a specific program of study as listed in this Catalog. To be eligible for a Certificate from The Williamsport Area Community College, the student is expected to satisfy the following:

a. Complete a recommended program of study as set forth in this Catalog. Students may substitute courses with prior written permission of the appropriate Division Director and the Dean of Academic Affairs.
b. Complete at least half of the credits required, including the last semester, in courses offered by the College. This includes credit received for Advanced Placement, Credit by Examination, or Life Experience.
c. Earn at least a "C" average (2.00 cumulative grade-point average) in all courses and complete all required courses with a grade of "D" or better.
d. Fulfill all financial obligations to the College.

Additional Information

If after completing the final semester, the student lacks some credits required for a degree or certificate, he/she may, with prior approval of the appropriate Division Director and the Dean, be permitted to take up to six semester credit hours from another college to fulfill requirements for a degree or certificate from The Williamsport Area Community College. Only grades of "C" or better are acceptable for such transfer credit.

Petition to Graduate: In order to graduate a student must report to the Student Records Office and complete a "Petition for Graduation" form during the first five weeks of classes of the semester in which the student intends to graduate. If this form is not submitted, the student's name will not appear on the Graduation Program. In addition, *the student's final transcript will state that the student is a "non-returning" student,* rather than a graduate.

Students who meet graduation requirements in the summer will graduate at the end of the second summer session.

The Dean's Honor List

The honor list is announced by the Dean at the completion of each semester. The list will include only those full-time students who have a semester grade-point average of 3.30 or better.

Withdrawal from College

If a student finds it necessary to withdraw from the College for any reason, the student must:

1. Officially withdraw by reporting to his/her advisor, Counseling and Career Development, and his/her instructors to obtain and complete the necessary student status change forms and drop/add forms.
2. If the student is also applying for a refund, the "Request for Refund" form must be filled out and submitted with the student status change forms.
3. Satisfactorily account for all property issued by the College.
4. Settle all outstanding College obligations.

Students who do not officially withdraw from the College in the prescribed manner will receive the grade of "F" or "WF" in all courses.

No refunds will be issued unless a student completes the above steps and initiates them within the proper time frame. (See page 10 for dates for withdrawals and refunds.)

The College reserves the right to terminate enrollment of any student or to withhold the degree of any student, if, in the opinion of College authorities, his/her further association is not in the best interests of the student or the College. Specific situations in which the College may terminate a student include, but are not limited to:

1. Failure to meet financial obligations.
2. Failure to meet requirements in a given program and/or course.
3. In certain Allied Health programs, failure to demonstrate safe practices and to complete objectives.

Recommended procedures for appealing questions on academic evaluation are given in the Student Handbook.

Student Conduct

On admission to The Williamsport Area Community College you accept unqualified commitment to conduct yourself at all times, both on and off the campus, in a responsible manner which conforms with the generally accepted standard of adult behavior. It is expected that you will show courtesy and respect for the administrative officers, faculty, and employees in your personal contacts. You must also understand and accept the necessity for various College regulations and comply with the directives of those authorized to enforce the regulations. If you conduct yourself in a manner contrary to the best interests of the College you will be subject to such penalties as the circumstances justify, including suspension or expulsion. Additional information regarding student conduct on campus and student judicial procedures is available in the Student Handbook.

A student may be suspended or dismissed for improper conduct, failure to comply with College regulations, academic dishonesty, habitual absences, lack of effort and interest, possession of, or being under the influence of, alcoholic beverages or illegal drugs, or under other circumstances as determined by the Board of Trustees.

In all cases where academic dishonesty is established, the student may be dropped from the course with a grade of "F". For a second offense, the student may be dismissed from the College. In a case involving a question of academic dishonesty, the professor in whose class the incident is alleged to have occurred will consult with the appropriate Division Director regarding disciplinary action.

Attendance Policy

1. Regular and prompt attendance at all classes and at scheduled conferences with instructors is expected of all students. All work missed by reason of absence, regardless of the cause, must be made up to the satisfaction of the instructor. Students who know that they will be absent are expected to get assignments from instructors in advance so that the necessary work will be completed before the student leaves, or immediately upon his/her return. This applies to absences for College activity trips as well as absences for other reasons. In all cases of anticipated absence, students should confer with their instructors in advance whenever possible.

2. All faculty are required to record attendance daily.

3. When a student, in the instructor's judgment, is not adequately meeting the course objectives and has missed *more than* the equivalent of the class hours held in one week of instruction, the instructor MAY recommend the student be withdrawn from class by the College.

   If, in the judgment of the instructor, extenuating circumstances are involved (e.g., a death in the family, hospitalization, illness, or serious accident), the following alternatives are available to the student.

   a. To arrange with the instructor's approval a stated plan for meeting course objectives and responsibilities. If completion of the approved plan extends beyond the semester, the student can receive an "I" grade (Incomplete).
   b. Until the end of the tenth week, or equivalent, of each term, the student can withdraw and receive a "W" grade (Withdrawn).

4. Based upon the instructor's recommendation, a decision to withdraw a student from a course MAY be made by the appropriate Division Director. Withdrawal from a course by the College for excessive absences will only be done after the first three weeks of each term or 20 percent of instruction and will be recorded on the student's transcript as a "WF" (Withdrawn Failing).

5. Appeal Process: Students who are withdrawn from a course by the College may appeal the decision within three school days of notification.

   The student may appeal the decision to either the Dean of Academic Affairs OR the Ad Hoc Academic Policy Group consisting of the Dean of Academic Affairs, President of the Student Government Association, and Chairperson of the Academic Policy Committee.

Academic Probation

Any degree or certificate candidate whose cumulative grade-point average is below 2.00 will be placed on academic probation. A student on probation may be required to report to Counseling and Career Development for special counseling before being allowed to register for classes the following semester. A student may be dropped from the College unless the following cumulative grade-point average is earned:

End Of:	Cumulative Grade-Point Average
First Semester	1.50
Second Semester	1.80
Third Semester	1.90

Students are encouraged to seek consultation on academic matters with their advisor or a College counselor.

Final Examinations

Final examinations may be scheduled by instructors at the end of each semester. A student who is absent from a final examination without good reason is subject to a failing grade.

Developmental Studies Program

The open admissions policy of The Williamsport Area Community College permits students to enroll in the programs of their choice. However, all entering students must exhibit competencies in the basic skills (reading, computation, and written expression) necessary for success in their programs. Students who have not demonstrated these competencies on the college placement tests are required to complete specific courses in order to earn a degree or certificate from WACC.

The College will award institutional credit for developmental studies courses and the grades earned in those courses will be included in the student's grade point average; five developmental courses—RDG 101, RDG 102, RDG 103, CHD 100, and CHD 101—carry elective credit and may be used to fulfill a general elective requirement. Developmental courses with institutional credit may not replace any course requirement or elective.

The Developmental Studies program is designed to serve a variety of students: those who lack academic skills and requirements for the curriculum of their choice; the "non-traditional" student: unemployed adults, adults returning to school after a number of years of absence, high school dropouts, veterans; those students referred to the program by instructors who recognize a need for one or more of the program's services; those who require assistance and solicit the program services on a "walk-in" basis. The program consists of courses in academic skills, human development, study skills, and career planning.

Students may enter the entire program or part of it as the result of counseling, placement tests, academic record, or personal choice. While in the program, students will take courses in their curriculum. One strength of the program is the frequent contact with staff who assist the student with course selection, problem solving, decision making, career planning.

Classwork is designed to promote a successful teaching-learning atmosphere. Varied learning strategies, individualized and self-paced instruction, small group sessions, tutorial and media support are integrated into the course work.

College Opportunity Programming (COPing)

This program, funded under the Equal Education Opportunity legislation, Act 101, serves students who are academically and financially disadvantaged. COPing students enroll in Developmental Studies courses; in addition they receive counseling services and tutorial services, participate in cultural and social activities and in a pre-college activity, and are assisted in developing a financial aid package designed to provide them adequate support.

For additional information on either the Developmental Studies Program or College Opportunity Programming, contact:

Director of Developmental Studies & Act 101
The Williamsport Area Community College
1005 West Third Street
Williamsport, PA 17701
(717) 326-3761, Ext. 266

Center For Lifelong Education

The Center for Lifelong Education provides a variety of educational opportunities and services that complement the College's traditional degree and certificate programming.

Designed primarily to meet the educational needs of adults, the Center for Lifelong Education offers hundreds of vocational, avocational, and personal enrichment courses throughout the year. These courses are taught on the College's main campus in Williamsport as well as at satellite locations throughout the College's service area.

Most of the courses offered through the Center for Lifelong Education are non-credit. They do not involve formal testing, do not offer grades, and may not be used to fulfill requirements in any of the College's credit curricula. They do offer students the opportunity to learn new skills, upgrade existing capabilities, develop increased knowledge, or participate in new experiences or activities.

Specialized courses are also available through the Center. Specific courses can be custom-designed to meet the training needs of individual businesses and industries. Continuing professional education courses are offered for those who require such courses in order to maintain licensure or certification. Trips and a variety of outdoor experiences are available through the Wilderness Adventure Program. The educational needs of senior citizens are met through participation in ELDERHOSTEL and the development of special courses and programs. Community service workshops and forums are also presented when there is a need to address specific topics which interest the residents in the College's service area.

Credit programs for the part-time student will be available through the Center beginning in 1982. Each program will be designed for the non-traditional student whose educational needs cannot be met through the College's full-time degree and certificate programs.

The services available through the Center for Lifelong Education reflect its commitment to adult students. The Center is open from 8:00 a.m. until 10:00 p.m. Monday through Thursday and from 8:00 a.m. until 4:30 p.m. on Friday. Child care is provided through Evening Tot Watch for toilet-trained children between the ages of 4 and 8 whose parents are attending evening classes. *WACC After Dark* is published and distributed by the Center to keep evening students informed of important information and events on campus. The Center also serves as a testing site for professional examinations.

All of the programs and services available through the Center are financially self-sustaining. The Center does not receive any financial support from the College's sponsoring school districts. Nevertheless, all courses and services are modestly priced and are very competitive with similar offerings from other educational providers.

The primary goal of the Center for Lifelong Education is to provide high quality, low cost educational opportunities and services in locations that are accessible and at times that are convenient. For more information or to discuss your educational needs, please visit the Center for Lifelong Education in Room 102 of the Klump Academic Center. If you prefer, you may call the Center at 326-3727. You will receive a warm reception and competent assistance.

Secondary Vocational Program

The Williamsport Area Community College is the only community college in the state to offer secondary vocational education. The College's Secondary Vocational Program is a unique example of what 12 school districts, together with the College, can provide for their students and their communities.

The Secondary Vocational Program at The Williamsport Area Community College provides education and training to high school students who want to prepare for employment following graduation as well as those who plan to pursue advanced education or training. High school students enrolled in the program spend one-half of the school year (on a nine-week alternating schedule) at their home high schools where they complete the academic and physical education courses required for high school graduation and half the school year attending vocational/technical classes at the College.

The Secondary Vocational Program offers a combination of classroom work and practical experience. Students work in the College's shops and labs to learn and practice the skills they will need when they begin working. During their senior year many students gain additional experience through participating in the cooperative education program.

Each Secondary Vocational program is designed to provide students with the skills needed to gain entry-level employment in their field. Graduates of the program who wish to pursue advanced education in their field may be granted advanced placement credit for the skills and competencies acquired in the program.

PROGRAMS

Auto Body Repair
Automotive Mechanics
Aviation Maintenance Technician
Carpentry
Cosmetology
Drafting - Architectural/Mechanical
Electrical Construction
Electronics
Forestry
Health Assistant
Horticulture
Machine Shop
Masonry
Sign Painting/Commercial Art
Small Engine Repair
Vocational Agriculture
Welding

SPONSOR SCHOOL DISTRICTS

Canton Area
East Lycoming
Jersey Shore Area
Keystone Central
Millville Area
Montgomery Area
Montoursville Area
Southern Tioga
South Williamsport Area
Sullivan County
Warrior Run
Williamsport Area

Commencement Awards

Commencement awards give public recognition of achievement in various areas accompanied by cash awards in varying amounts.

ANCHOR/DARLING VALVE AWARD for scholastic achievement in a certificate program in applied arts and sciences.

AVCO AWARD for scholastic achievement in humanities and social sciences.

LEWIS H. BARDO MEMORIAL AWARD to a student who exemplifies the ideals of Lewis H. Bardo (devotion to duty, helpfulness to others, friendliness, high ideals).

DALE RUSS BERG AWARD for proficiency in the operation and use of heavy equipment.

ELLEN HARDING BERRY NURSING AWARD presented to the student who has displayed outstanding scholastic achievement and exceptional ability in practicum and communication skills.

CENTRAL PENNSYLVANIA CHAPTER OF CHARTERED LIFE UNDERWRITERS' AWARD to an outstanding student in the two-year associate degree program in the Business and Computer Science Division who shows promise in the insurance field.

THE DR. EUGENE CHIANELLI AWARD to the student who displays the most proficiency in preventive dentistry.

THE DR. EUGENE CHIANELLI AWARD to the graduate student who has overcome the greatest obstacles or hardship in completing his/her education in the School of Dental Hygiene.

CLINTON ELECTRIC SUPPLY COMPANY, INCORPORATED, AWARD for outstanding electrical student.

COMMONWEALTH BANK & TRUST COMPANY DATA PROCESSING DEPARTMENT AWARDS to two outstanding students in the Computer Science Program, one for the two-year Associate Computer Science Degree and one for the one-year Certificate Computer Operator Course, based on the following criteria: scholastic attainment, leadership ability, and contribution to data processing education at WACC.

THE COMPUTER SCIENCE FACULTY AWARDS to two outstanding students in the Computer Science Program who have excelled in the program and who have exhibited those qualities of leadership, friendship, cooperation, and dedication that will make him/her a valuable addition to the profession. One award will be given to a two-year Computer Science Degree student and one to a one-year Computer Operator Certificate student.

DEANS' AWARD for scholastic achievement and service to the College.

DENTAL HYGIENE FACULTY AWARD given to the student who has demonstrated the highest professional attitude.

DENTAL HYGIENE FACULTY AWARD to the student who demonstrated extraordinary enthusiasm and commitment to the dental hygiene profession.

ELIZABETH R. DOWNS AWARD for secretarial proficiency.

GLENN E. DUNLAP SCHOLARSHIP AWARDS to students selected by faculty of the Building Technologies Division, based on high scholarship standing, better than average skills, dependability and competence, and on capabilities of leadership as exemplified by Glenn E. Dunlap.

FORKLIFTS, INCORPORATED, AWARD given to a graduating cooperative education student in the Service and Operation of Heavy Construction Equipment Program who has demonstrated superior competencies in the service area.

GAMMA EPSILON TAU FRATERNITY AWARD to the student in the Graphic Arts Program who exhibits outstanding development in skill, capability and leadership, and a willingness to help others.

HOFF SUPPLY COMPANY AWARD, in memory of the late Samuel H. Hoff, for his understanding and appreciation of the need for plumbing and heating tradespeople to be able to use mathematics effectively and accurately in the application of their craft, to the graduating student in plumbing and heating who excelled in related mathematics and attended college under exceptional conditions.

THE DR. CLARKE J. HOLLISTER MEMORIAL AWARD to the graduating student of Dental Hygiene who has displayed outstanding interest and accomplishment in the area of patient education.

THE RICHARD M. KNAUR AWARD for a student who shows excellence in the field of business and technology and is planning on pursuing this field as his/her life work.

LYCOMING RADIOLOGY ASSOCIATES, LTD. AWARD for the student who most nearly exemplifies the ideals of selflessness, unusual devotion to duty, sensitivity to the patient's comfort and needs, and service to colleagues, patients and the hospital beyond the ordinary.

THE EWING W. MUESELER AWARD for the student showing the highest degree of proficiency in the Diesel Program.

THE NORTHERN CENTRAL BANK ANNUAL AWARD to a graduating student in the two-year Computer Science Associate Degree curriculum based on the following criteria: the student (1) must plan to enter the data processing field, (2) must have demonstrated excellence in programming and other data processing curriculum, (3) must have maintained an above average total scholastic achievement, and (4) must have demonstrated a high degree of leadership ability.

PENNSYLVANIA INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS' AWARD for excellence in accounting studies under criteria set forth by the Pennsylvania Institute of Certified Public Accountants in the Business and Computer Science Division.

PENN-YORK LUMBERMEN'S AWARD for outstanding citizenship and interest in management and wise use of forest resources.

PHI BETA LAMBDA FRATERNITY AWARD for performance and dedication to the fraternity.

PRESIDENT'S AWARD for leadership and service to the college community.

PULLMAN POWER PRODUCTS AWARD for scholastic achievement in an associate degree program in applied arts and sciences, Engineering and Design Technologies Division.

RAUB SUPPLY COMPANY AWARD to the most outstanding student in the electrical construction curriculum.

RAUB SUPPLY COMPANY AWARD to the graduating plumbing and heating student with academic excellence and exceptional ability to perform trade related skills.

HELEN A. SMITH AWARD presented to the nursing student who has shown extraordinary achievement in theory, practicum and personal growth.

CHAPTER 49 OF THE SOCIETY OF MANUFACTURING ENGINEERS (SME) AWARD a certificate of merit to the SME student-member who has contributed most to the advancement of manufacturing education.

ROSE STAIMAN MEMORIAL AWARD to the student who fulfills the following requirements of brotherhood, service to college and community, and scholastic achievement.

WILLIAM J. STITZEL MEMORIAL AWARD for the graduate from the heavy construction equipment department who best exemplifies William J. Stitzel's dedication and service to the College and the student body.

ROBERT G. THOMAS AWARD for the graduating student who has attained the highest cumulative average in welding.

TRUSTEES' AWARD to two students for achievement under exceptional conditions.

U. A. LOCAL NO. 810 PLUMBERS AND STEAM FITTERS AWARD to a graduating student in plumbing and heating, residing in the Local No. 810 membership area, who has shown a strong interest and desire to become a member of the Plumbers and Steam Fitters Local No. 810.

WALL STREET JOURNAL STUDENT ACHIEVEMENT AWARD to that graduating student demonstrating superior achievement in business administration.

THE WEST BRANCH DATA PROCESSING AWARD to an outstanding student in the computer science field.

THE WEST BRANCH RADIOLOGICAL ASSOCIATES AWARD to an outstanding graduate student of the Radiologic Technology Associate Degree program who has demonstrated high scholastic achievement, competence in and dedication to the profession, and a caring attitude toward all people.

STAFF

OFFICE OF THE PRESIDENT

ROBERT L. BREUDER/President; B.A., M.S., State University of New York at Albany; Ph.D., The Florida State University

DAVID M. HEINEY/Special Assistant to President; B.A., Lycoming College; M.A., Bucknell University; Ed.D., Nova University

WILLIAM HOMISAK/Assistant to President (Associate Professor); B.S., Bloomsburg State College; M.Ed., University of Pittsburgh; D.Ed., The Pennsylvania State University

ROBERT G. BOWERS/Assistant to President for Legal and Labor Matters/Dean of Academic Affairs (Professor); B.S., Juniata College; M.S., University of Delaware; Ph.D., The Pennsylvania State University

ACADEMIC AFFAIRS

ROBERT G. BOWERS/Dean of Academic Affairs/Assistant to President for Legal and Labor Matters; B.S., Juniata College; M.S., University of Delaware; Ph.D., The Pennsylvania State University

LUENE H. CORWIN/Associate Dean of Academic Affairs; Postsecondary (Assistant Professor); B.A., Whittier College; M.S., Simmons College; Ph.D., Cornell University

Learning Resources Center

DAVID P. SIEMSEN/Director of Learning Resources Center; B.A., Pontifical College Josephinum; M.S.L.S., Syracuse University

A. NEALE WINNER/Coordinator of Media Services and Instructional Technology

LAURA M. HAAS/Librarian (Assistant Professor); B.S., Millersville State College; M.L.S., University of Pittsburgh

ANDREW E. SPULER/Librarian (Assistant Professor): B.S., Lycoming College; M.Ed., The Pennsylvania State University; M.L.S., University of Pittsburgh

Academic Divisions and Programs

DONALD B. BERGERSTOCK/Director of Business and Computer Science Division (Professor); B.S., Bloomsburg State College; M.S., Bucknell University; D.Ed., The Pennsylvania State University

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MARY ANN LAMPMAN/Developmental Studies Lab Assistant; B.S., College Misericordia

GEORGE C. KRAUSE/Director of Building Technologies Division (Assistant Professor)

SANDRA S. LUKS/Coordinator of Dental Hygiene; R.D.H.; B.S., Northeastern University; M.Ed., Bucknell University

PAUL L. McQUAY/Director of Engineering and Design Technology Division (Professor); A.A.S., The Williamsport Area Community College; B.S., University of Southern Colorado; M.S., Ph.D., The Pennsylvania State University

ANN MIGLIO/Coordinator of Food and Hospitality Lab; B.S., University of Wisconsin, Staut Campus

MICHAEL P. NESTARICK/Acting Director of Mathematics, Science and Allied Health Division (Associate Professor); B.S., Bloomsburg State College; M.S., Bucknell University

MARLIN M. ROUSH/Director of Transportation Technologies Division (Assistant Professor)

JOSEPH G. SICK/Director of Earth Science Division (Professor); B.S., M.S., The Pennsylvania State University

ROBERT J. SLOTHUS/Coordinator of Radiologic Technology Program; B.S., Thomas Jefferson University

RICHARD M. SWEENEY/Director of Communications, Humanities and Social Sciences Division; A.B., Wabash College; M.A., Ph.D., Brown University

THOMAS E. VARGO/Director of Physical Education, Summer Sessions and Off-Campus Programs; B.S., M.Ed., The Pennsylvania State University

PATRICIA L. WATSON/Coordinator of Radiologic Technology Lab; B.S., Salem College

DONALD O. YOUNG, SR./Director of Electric/Electronics Division (Associate Professor); A.A., The Williamsport Area Community College; B.S., The Pennsylvania State University

...Coordinator of Computer Science Lab (Appointment pending)

ADMINISTRATION

WILLIAM C. ALLEN/Dean of Administration; B.S., The Pennsylvania State University

JAMES C. McMAHON/Administrative Assistant to Dean of Administration; B.A., Lycoming College

ELEONORE BEEBE/Supervisor of Bookstore

Business and Financial Operations

JAMES C. McMAHON/Acting Director of Business and Financial Operations; B.A., Lycoming College

E. H. DEWALT, JR./Chief Accountant; A.A., Goldey Beacon Junior College; B.S., M.S., Bloomsburg State College

GEORGE C. MOSTELLER/Manager of Inventory and Surplus Property Procurement

JANICE W. ODELL/Supervisor of Purchasing

DEBORAH A. RUPERT/Accountant; A.A.S., The Williamsport Area Community College

ANDREA SKROBACS/Bursar

HARRY TUPPER/Manager of Warehouse

Computer Center

WILLIAM T. WARD/Director of Computer Services (Assistant Professor); B.S., Wisconsin State University; M.S., George Washington University

MICHAEL M. CUNNINGHAM/Programmer Analyst; A.A.S., The Williamsport Area Community College

RICHARD L. FINK/Programmer Analyst; A.A.S., The Williamsport Area Community College; B.S., Bloomsburg State College

CHARLES H. WHITFORD/Programmer Analyst; Certificate, Williamsport Technical Institute

Student Records

KATHRYN MARCELLO/Director of Student Records; B.A., Lycoming College

DEVELOPMENT

GRANT M. BERRY, JR./Dean of Development; B.A., Lycoming College; M.Ed., The Pennsylvania State University; Ph.D., The University of Connecticut

PAUL PETCAVAGE/Resource Development Specialist; B.A., Mansfield State College; M.A., The Pennsylvania State University

EMPLOYEE AND PUBLIC RELATIONS

...Dean of Employee and Public Relations (Appointment pending)

JUDITH L. DEMKO/Manager of Duplicating and Mail Services; Certificate, Williamsport Technical Institute

BARBARA A. GILMOUR/Director of Communications; B.A., M.A., The Pennsylvania State University

LINDA MORRIS/Director of Personnel Services; B.A., Good Counsel College; M.A., Ohio University

GENERAL SERVICES

DONALD PETERSON/Dean of General Services; B.S., University of Nebraska at Omaha

HARRY BAILEY/Supervisor of Maintenance

ROBERT E. LINN/Supervisor of Custodial Services

LAWRENCE SMEAK/Supervisor of Security

JOHN YOST/Supervisor of Heating and Cooling Systems; A.S., State University of New York, Alfred Agricultural and Technical School

LIFELONG EDUCATION

RUSSELL C. MAUCH/Dean of Lifelong Education; B.A., Muhlenberg College; M.A., Ph.D., University of Massachusetts, Amherst

BARBARA A. DANKO/Coordinator of Outreach Programs; B.S., Mansfield State College; M.A., Indiana University of Pennsylvania

CAROL F. KAUFMAN/Coordinator of Non-Credit Programs On-Campus; B.A., The Pennsylvania State University

MICHAEL A. SEDLAK/Coordinator of Special Programs; B.S., The Pennsylvania State University; M.Eq., Pennsylvania Department of Education

THOMAS E. VARGO/Director of Physical Education, Summer Sessions and Off-Campus Programs; B.S., M.Ed., The Pennsylvania State University

STUDENT DEVELOPMENT

LAWRENCE W. EMERY, JR./Dean of Student Development; B.A., University of Maine, Orono; M.S., State University of New York at Oneonta

MARY BARDO/Manager of Tot Watch; R.N., Geisinger Medical Center

NANCY C. ELIAS/Dispensary Nurse; R.N., Philipsburg General Hospital

Admissions

CHESTER D. SCHUMAN/Director of Admissions; A.B., Susquehanna University; M.Ed., Memphis State University

PATRICIA STALGAITIS/Assistant Director of Admissions; A.B., Lycoming College

Counseling and Career Development

KATHRYN A. FERRENCE/Coordinator of ACES; B.A., Lock Haven State College; M.Ed., The Pennsylvania State University

JULIE A. GROGAN/Career Development Specialist; B.S., Iowa State University; M.S.W., University of Missouri

MARTIN E. McCORMICK/Career Development Specialist; B.S., Ball State University; M.A., Western Michigan University

THOMAS M. McNALLY/Counselor (Professor); B.A., St. Vincent College; M.Ed., (2), University of Pittsburgh

THOMAS C. SHOFF/Counselor; B.S., M.Ed., The Pennsylvania State University

Financial Aid

...Director of Financial Aid (Appointment pending)

JANICE A. KUZIO/Financial Aid Assistant; A.S., The Williamsport Area Community College

DONALD S. SHADE/Financial Aid Assistant; A.A., The Williamsport Area Community College; B.S., Bloomsburg State College

Student Activities and Placement

FRANK J. BOWES/Director of Student Activities and Career Placement; B.S., Lock Haven State College; M.Ed., The Pennsylvania State University

JO ANN FREMIOTTI/Coordinator of Student Activities; B.S., Boston University

Youth Employment and Training Program (YETP)

G. ROBERT CONVERSE/Coordinator of Youth Employment and Training Program; B.A., Lycoming College; M.S., Rutgers University

DENNIS L. DUNKLEBERGER/Program Assistant, Career Exploration for Adults; B.A., East Stroudsburg State College

DAVID HENDERSON/Program Assistant, Youth Employment and Training Program

KATHI A. REED/Program Assistant, Youth Employment and Training Program; B.A., Bucknell University

JOYCE SELVOCKI/Program Assistant, Career Exploration for Adults; B.S., Bloomsburg State College

FACULTY, COUNSELORS, LIBRARIANS

JAMES I. ADAMS/Associate Professor, Tile Setting

SCOTT B. APPLEMAN/Instructor, Service and Operation of Heavy Construction Equipment; Certificate, The Williamsport Area Community College

ALEX W. BAILEY/Associate Professor, Business Administration; B.S., Indiana University of Pennsylvania; M.Ed., The Pennsylvania State University

JOANNE B. BAKER/Instructor, Health Occupations; R.N., University of Pennsylvania Hospital School of Nursing

KENNETH L. BALLIET/Assistant Professor, Forestry Technology; A.A., Lehigh County Community College; B.S., West Virginia University; M.Ed., The Pennsylvania State University

JACQUELINE BAUGHMAN/Instructor, Practical Nursing; R.N., Reading Hospital School of Nursing; B.S., Albright College

FRANKLIN P. BEATTY III/Assistant Professor, Plumbing; B.S., Susquehanna University; M.Ed., The Pennsylvania State University

DELMONT F. BERGEY/Assistant Professor, Automotive; A.A.S., The Williamsport Area Community College

SETH M. BIERLY/Instructor, Machine Shop

CHARLES A. BROOKE/Instructor, Mathematics, A.B., Lycoming College

DARLA BROWN/Instructor, Dental Hygiene; A.A., The Williamsport Area Community College

JOSEPH H. BROWN, SR./Instructor, Automotive; A.A.S., The Williamsport Area Community College

JAMES BRYAN/Counselor, Developmental Studies & Act 101 (Assistant Professor); B.S., Lycoming College; M.S., Bucknell University

WILLIAM A. BURGER/Instructor, Plumbing and Heating

LAMONT E. BUTTERS/Assistant Professor, Civil Technology; B.S., The Pennsylvania State University; M.S., Purdue University

RALPH B. CALVERT/Instructor, Electrical Construction; B.S.E.E., The Pennsylvania State University

ANTHONY N. CILLO/Instructor, Journalism; B.A., The Pennsylvania State University

DAVID B. CLARK/Assistant Professor, Chemistry; B.A., Lycoming College; M.S., Bucknell University

NED S. COATES/Assistant Professor, English; B.A., Susquehanna University; M.A., University of Arkansas

LLOYD C. COTNER/Assistant Professor, Architecture; R.A.

ROBERT G. CRISSMAN/Instructor, Building Construction

WILLIAM E. CURRY/Instructor, Automotive

ELIZABETH A. DAHLGREN/Assistant Professor, Business Administration; B.S., M.Ed., Bloomsburg State College

ROBERT W. DANELLEY/Instructor, Electrical Construction

ROGER E. DAVIS/Assistant Professor, Mathematics; B.S., Clarion State College; M.S., Bucknell University

MICHAEL T. DECKMAN/Assistant Professor, Automotive; A.A.S., The Williamsport Area Community College

DAVID DIETRICK/Instructor, Welding

FRED W. DOCHTER/Assistant Professor, Carpentry; A.A., The Williamsport Area Community College

JAMES E. DOEBLER/Instructor, Aviation; Certificate, The Williamsport Area Community College

DANIEL J. DOYLE/Professor, Government and History; B.A., Maryknoll Seminary; M.A., Ph.D., St. John's University

SAMUEL E. DRIVER/Instructor, Automotive

PETER DUMANIS/Associate Professor, English; B.A., Clark University; M.A., Adelphi University; Ph.D., Syracuse University

WILLIAM H. EALER/Assistant Professor, Architecture; R.A.; N.C.A.R.B. Registration; B.S., B. Arch., Renselaer Polytechnic Institute

CARYLL ECK/Associate Professor, Practical Nursing; R.N., Williamsport Hospital School of Nursing; B.S., Bloomsburg State College

BENJAMIN H. ELDRED/Instructor, Service and Operation of Heavy Construction Equipment; Certificate, The Williamsport Area Community College

JACQUELYNNE D. ELLIS/Associate Professor, Practical Nursing; R.N., Harrisburg Polyclinic Hospital; B.P.S., Elizabethtown College

DAN C. EMICK/Instructor, Service and Operation of Heavy Construction Equipment

WAYNE E. ETTINGER/Associate Professor, Horticulture; B.S., The Pennsylvania State University

DENNIS E. FINK/Instructor, Horticulture; A.A., The Williamsport Area Community College

DONALD M. FLYNN/Associate Professor, Automotive

ROY FONTAINE/Instructor, Psychology; M.S., Bucknell University

JAMES W. FOX/Instructor, Welding; A.A., The Williamsport Area Community College

JAMES GARLAND/Instructor, Aviation; A.S.T., Pittsburgh Institute of Aeronautics; B.S., Savannah State College

JAMES W. GEORGE/Instructor, Agribusiness; B.S.A., University of Georgia

GLEN F. GETCHEN/Instructor, Machine Shop

PAUL W. GOLDFEDER/Assistant Professor, Business Administration; B.S., University of Pittsburgh

RAE ANN GORDNER/Instructor, Dental Hygiene; Certificate, Temple University; B.S., Bloomsburg State College; M.S., Marywood College

THOMAS G. GRAY/Assistant Professor, Physical Education; B.S., Lock Haven State College; M.Ed., Temple University

RICHARD B. GREENLY/Assistant Professor, Business Administration; B.S., M.S., Bloomsburg State College

FRANK C. GRENOBLE/Associate Professor, Building Construction; Masters Equivalent, The Pennsylvania State University

JULIE A. GROGAN/Career Development Specialist; B.S., Iowa State University; M.S.W., University of Missouri

ANTHONY GURAVAGE/Assistant Professor, Electrical Construction; A.A., The Williamsport Area Community College

LAURA HAAS/Librarian (Assistant Professor); B.S., Millersville State College; M.L.S., University of Pittsburgh

ROBERT L. HAFER/Instructor, Automotive

JOHN K. HAMMOND/Associate Professor, Automotive; B.S., M.Ed., The Pennsylvania State University

PAUL L. HEIM/Assistant Professor, Carpentry; A.I.S., The Williamsport Area Community College

PHILIP H. HENNING/Instructor, Electrical; B.A., The Pennsylvania State University; M.A., San Francisco State University

CARL HILLYARD/Instructor, Carpentry

DAVID JOHNSON/Instructor, Electronics

LYLE W. KEELER/Instructor, Electric Construction

G. ROBERT KISSELL/Professor, History and Government; B.S., Lock Haven State College; M.S.Ed., Bucknell University

FRANCIS KITCHEN, SR./Assistant Professor, Machine Shop

HARVEY H. KUHNS, JR./Associate Professor, Economics; A.S., Dickinson Junior College; B.S., Lycoming College; M.S., Bucknell University

PHILLIP D. LANDERS/Assistant Professor, Business Administration; B.S., Bloomsburg State College; M.B.A., Michigan State University

FRANK P. LEACH/Instructor, Plumbing; A.O.S., Culinary Institute of America

JOHN H. LEGO/Instructor, Mathematics; B.S., The Pennsylvania State University

THOMAS LEITZEL/Instructor, Marketing/Merchandising; A.A., The Williamsport Area Community College; B.A., Lycoming College

PATRICIA E. LEWIS/Assistant Professor, Mathematics; B.S., Lycoming College; M.S., Bucknell University

JAMES E. LOGUE/Associate Professor, English; B.A., M.A., Bucknell University

DAVID LOTT/Instructor, Computer Science; A.A.S. (2), The Williamsport Area Community College

ROBERT L. LYONS/Instructor, Marketing/Merchandising; B.S., The Pennsylvania State University

JOSEPH G. MARK/Instructor, Architectural Drafting; R.A.; B. Arch., The Pennsylvania State University

FLORENCE MARKLEY/Instructor, English; B.S., Millersville State College

JOSEPH P. MARTIN/Instructor, Plumbing

MARTIN E. McCORMICK/Career Development Specialist; B.S., Ball State University; M.A., Western Michigan University

MARGARET L. McKEEHEN/Professor, Practical Nursing; R.N., Columbia Hospital School of Nursing; B.S., Bloomsburg State College; M.Ed., The Pennsylvania State University

THOMAS M. McNALLY/Counselor (Professor); B.A., St. Vincent College; M.Ed. (2), University of Pittsburgh

DALE A. METZKER/Assistant Professor, Graphic Arts; A.A., The Williamsport Area Community College

VICTOR A. MICHAEL, SR./Instructor, Electronics; B.S., Bloomsburg State College

JOSEPH P. MIGLIO/Instructor, Machine Shop; B.S., University of Wisconsin; M.A., University of Minnesota

DONNA R. MILLER/Assistant Professor, Physical Education; B.S., Lock Haven State College; M.Ed., The Pennsylvania State University

LYMAN I. MILROY/Assistant Professor, Mathematics; B.A., Susquehanna University; M.S., Bucknell University

JACK A. MIRTO/Instructor, Automotive

ROBERT S. MIX, JR./Instructor, Electrical Construction

DAVID MONTGOMERY/Instructor, Welding

VIVIAN P. MOON/Associate Professor, Food Service and Hospitality; R.D., B.S., M.Ed., The Pennsylvania State University

GLADYS L. MORRIS/Instructor, English; B.S., Lock Haven State College

PATRICK D. MURPHY/Assistant Professor, Advertising Art; A.S., Luzerne County Community College; B.A., King's College

VERONICA M. MUZIC/Associate Professor, English; B.A., College Misericordia; M.A., Bucknell University

H. RONALD NEECE/Instructor, Carpentry

DAVIE JANE NESTARICK/Instructor, Dental Hygiene; A.S., B.S., West Liberty State College

HAROLD L. NEWTON/Instructor, Graphic Arts

JAMES NEWPHER/Instructor, Machine Shop (Temporary)

DONALD NIBERT/Assistant Professor, Forestry; B.S., M.S., West Virginia University

RUTH N. NICE/Instructor, Practical Nursing; Diploma, Nesbitt Memorial Hospital; B.S., Wilkes College

ROBERT L. NORTON/Instructor, Aviation; Certificate, Williamsport Technical Institute; A.A.S., The Williamsport Area Community College

EARL L. PARRISH/Associate Professor, Machine Shop

ELWOOD PAULING/Instructor, Machine Shop

RODMAN H. PERRY/Instructor, Automotive

RAMON H. PICKERING/Instructor, Automotive

JAMES C. PIVIROTTO/Associate Professor, Forest Technology; B.S., The Pennsylvania State University

FRANK L. PORTER/Associate Professor, English; B.A., University of Florida; M.A., Bucknell University

CHRIS RADKE/Associate Professor, Drafting; C.E.T., A.A.S., The Williamsport Area Community College; B.S., State University of New York at Oswego

FREDERICK J. RANKINEN/Professor, Civil Technology; R.S., B.S., Ohio State University; M.Eng., The Pennsylvania State University

RICHARD W. RANKINEN/Assistant Professor, Forestry; B.S., University of Idaho

RONALD L. ROCK/Associate Professor, Business Administration; B.S., Shippensburg State College; M.Ed., The Pennsylvania State University

WILLIAM G. RUMMINGS/Instructor, Building Construction; A.A., The Williamsport Area Community College

RICHARD SAHN/Instructor, Sociology, Psychology; B.A., Bard College; M.A., Duquesne University

FRED C. SCHAEFER, JR./Instructor, Graphic Arts; A.S., The Williamsport Area Community College

JANE LOREN SCHEFFEY/Instructor, Business Administration; B.S., M.Ed., Bloomsburg State College

FREDERICK SHARAR/Assistant Professor, Foreign Languages; A.B., Lycoming College; Zeugnis, Baden Wurtenberg, Universitat Heidelberg

JAMES B. SHAW, JR./Assistant Professor, Physics; B.S., Lafayette College; M.S., Old Dominion University

PATRICIA SHOFF/Assistant Professor, Business Administration; B.S., M.Ed., Indiana University of Pennsylvania

THOMAS C. SHOFF/Counselor; B.S., M.Ed., The Pennsylvania State University

SUZANNE SIMON/Instructor, Computer Science; A.S., A.A.S., The Williamsport Area Community College

L. G. SIMPSON/Assistant Professor, Physics, B.S., Lycoming College

ROBERT G. SNAUFFER/Instructor, Electrical Construction and Technology

HARRY C. SPECHT/Assistant Professor, Physical Education; B.S., Lock Haven State College; M.S., University of Bridgeport

ANDREW E. SPULER/Librarian (Assistant Professor); B.S., Lycoming College; M.Ed., The Pennsylvania State University; M.L.S., University of Pittsburgh

WILLIAM L. STEVENS/Assistant Professor, Service and Operation of Heavy Construction Equipment; B.S., University of Nebraska; M.Ed., Colorado State University

DALE R. STRAUB/Professor, Drafting Technology; A.S., The Williamsport Area Community College; B.S., M.Ed., The Pennsylvania State University

ROBERT W. STULL/Instructor, Electrical Construction; A.A.S., The Williamsport Area Community College; B.E.T., Rochester Institute of Technology

JOSEPH SWIGERT/Instructor, Aviation; A.S., Wayne Community College

BONNIE R. TAYLOR/Assistant Professor, Business Administration; B.S., M.Ed., Bloomsburg State College

MARY E. TEMPLE/Instructor, Practical Nursing; R.N., Williamsport Hospital School of Nursing

DAMON THOMPSON/Professor, English; B.F.A., Ohio State University; M.F.A., University of Iowa

H. LARUE THOMPSON/Instructor, Electrical Construction

MARGARET A. THOMPSON/Associate Professor, Reading; B.S., Indiana University of Pennsylvania; M.Ed., University of Pittsburgh

RONALD THOMPSON/Professor, Biology; B.S., Lycoming College; M.S., Kansas State College

RAY F. TYLER/Associate Professor, Business Administration; B.S., Susquehanna University; M.S.B.A., Bucknell University

MICHAEL TYSON/Assistant Professor, Mathematics; B.S., Juniata College; M.A., University of Illinois

RITA C. ULRICH/Assistant Professor, Business Administration; B.S., M.Ed., Bloomsburg State College

ROBERT S. ULRICH/Assistant Professor, English; A.B., Lycoming College; M.Ed., Bloomsburg State College

CHALMER VAN HORN/Associate Professor, Drafting; C.F.M.E.; B.S., The Pennsylvania State University

ROBERT VAUGHN/Instructor, Welding

DONALD A. WALTMAN/Instructor, Electronics; B.S., Dickinson College; M.S., Franklin and Marshall

RICHARD WEILMINSTER/Associate Professor; A.A.S., State University of New York; B.S.A., University of Georgia; M.S., The Pennsylvania State University

JACKIE E. WELLIVER/Instructor, Drafting; A.I.S., The Williamsport Area Community College

MARY JANE WEST/Associate Professor, English; B.S., M.S., Bucknell University

WILLIAM R. WEYANT/Assistant Professor, Electrical; B.S., Indiana Institute of Technology

THOMAS M. WINDER/Assistant Professor, Computer Science; B.S., Lycoming College; M.S., Elmira College

HAROLD D. WINNER/Instructor, Building Construction

GEORGE P. WOLFE/Associate Professor, Computer Science; B.S., Lycoming College; M.S., Clarkson College of Technology

LLOYD F. WOODLING/Assistant Professor, Mathematics; B.S., Lock Haven State College; M.A., Bucknell University

JAMES YOUNG/Instructor, Carpentry

WILLIAM P. YOUNG, SR./Instructor, Building Construction; A.A., The Williamsport Area Community College

WILLIAM P. YOUNG, JR./Instructor, Computer Science; B.S., Lock Haven State College

PAUL J. ZELL, SR./Instructor, Plumbing

PAUL J. ZELL, JR./Instructor, Service and Operation of Heavy Construction Equipment

GENERAL ADVISORY COUNCIL

GEORGE E. LOGUE (Chairman)/George E. Logue, Inc.
ANTHONY CIMINI/Assemblyman
ROBERT CLARKSON/Avco Corp., Lycoming Division
SAMUEL COOPER/Superintendent, Warrior Run School District
SALLY CRAIG/President, League of Women Voters
IVAN DINGES/Supervisor, Vocational and Special Education, BLAST, Intermediate Unit 17
JOHN F. ENGEL/Plumbers and Steam Fitters Union
ARTHUR FRY/Personnel Analyst, PA Dept. of Transportation
RICHARD B. GREENE/Vice President and Administrator, Williamsport Hospital
DAVID HINAMAN
DR. PAUL KLENS/Professor, Lock Haven State College; Board of Trustees, The Williamsport Area Community College
MARSHALL R. LAIRD/Manager, West Branch Manufacturers' Association
PERCY D. MITCHELL/Manager, Lycoming Housing Authority; Member, PA Colleges and Universities Board
PAULINE MONTGOMERY/Mayor, Hughesville
RUTH NEAL/Accountant, Dunham Enterprises
DR. JOHN O'BRIEN/Director, Sun AVTS
AUSTIN SHAW/Contractor, Eiswerth, Reeder and Shaw
ED SWISHER/Wood Procurement Supervisor, Hammermill Papers Group, Lock Haven Plant
GRANT TAGGERT/President, Keystone Friction Hinge Co.
MICHAEL WILT/Director of Manpower, Comprehensive Employment Training (CETA)

COOPERATIVE EDUCATION

RICHARD J. BURICK/Chef, Industry
RALPH EVANS/Owner, Ralph's Ford Service Center
JOSEPH GUINTA/Manager, Industrial Relations, Stroehmann Brothers Company
RONALD HAMPTON/Supervisor of Computer Programming, Koppers Company, Inc., Sprout-Waldron Operation
SAMUEL HOFF, JR./Owner, Hoff Supply Company
RITA F. KELLY/Computer Programmer, Northern Central Bank
ROBERT LAMBERT/Owner, Soup or Scoop
TERRY REYNOLDS/Letter Carrier, Williamsport Post Office
JUAN ROJAS/Computer Programmer, Eastman Kodak
ROBERT WALP/Knoll International
LINDA WHALEY/Secretary, Pullman Power Products
ALLEN WOLESLAGLE/Branch Manager, Forklifts, Inc.

COPING PROGRAM (ACT 101)

DONALD BENNETT/Local Office Manager, Bureau of Employment Security
EDWARD CLAUDIUS/Guidance Counselor, Montoursville High School
SAMUEL WASHINGTON/Counselor, Williamsport Area School District
MICHAEL WILT/Manpower Administrator, CETA

COUNSELING & CAREER DEVELOPMENT

DAPHNE ANDERSON
DONALD BENNETT/Manager, Bureau of Employment Security
DR. GEORGE DESAU/Psychologist
MARY JANE EVENDEN
WAYNE FAUSNAUGHT/Supervisor of Guidance & Counseling, Williamsport Area School District
DAVID FRANKLIN/STEP
WILLIAM RUPP/Lycoming College
GLORIA SACKMAN-REED
JANET TRICE/STEP
RHONA WILK/Hope Enterprises Rehabilitation Workshop

BUILDING TECHNOLOGY

Air Conditioning & Refrigeration

ROBERT BAILEY/Herre Brothers, Inc.
MIKE EARNEST/Pickelner Heating Company
JOHN ENGEL/Plumbers and Steam Fitters Union
NICHOLAS GAINER/Manager of Professional Employment, York Division of Borg-Warner
GLENN GOODFELLOW/Manager, Service Training Center, William Bynum Education Center
JOHN LEIPHART/Training Director of Electronics and Service Areas, York Division of Borg-Warner
JERRY MILLER/Dixon Air Conditioning & Refrigeration Corporation
SCOTT PARKES/Brownstown AVTS
LOUIS PATALITA/Service Training Manager, Carrier Corporation
JAMES REED/H.B. Alexander & Son Inc. (WACC Graduate)
MARTIN SNYDER/Service Manager and Training Coordinator, Ide Air Equipment, Inc.
RICHARD SPEACHT
WILLIAM WOLFE/Clayton Smith Company, Inc.

Building Construction Technology & Construction Carpentry

CHARLES D. FIANTACA/1979 President of Susquehanna West Branch Home Builders; CDF Home Improvements
DAVID N. HINAMAN
ROBERT C. JESSELL/Vice President, Lundy-Jessell Homes; Director of National Home Builders Assoc.
MELVIN R. LLOYD/Masonry Contractor
FRANCIS B. LORSON/Partner, Lorson and Lorson Building Contractors
CHARLES A. SHIPTON/President, C.A. Shipton, Inc., Building Contractor
CARL E. SNYDER/Secretary, G.C. Corporation
ROBERT WOOLCOCK/PP&L

Plumbing & Heating

ROBERT L. BERKHEIMER/Executive Director, PAPHCC
MICHAEL CELLINE/Maintenance, Bethlehem Steel Company
PAUL DAMASCA/Plumbing Masters
NEAL DIBBLE/Dibble Plumbing Services
JOHN F. ENGEL/Plumbers and Steam Fitters Union
SAMUEL R. HOFF/President and Treasurer, Hoff Supply Company
JESS SCHMUCK/Vice President and General Manager, Williamsport Plumbing and Heating Company
MICHAEL STEINBACHER/Service Manager, Montour Auto Service

BUSINESS AND COMPUTER SCIENCE

Business Administration

CHARLES K. BIRD/Personnel Director, Avco, Lycoming Division
ROBERT S. HARDER/Vice President and Secretary, Northern Central Bank and Trust Company
DONALD G. HOLTZMAN/General Manager, Stone Container Corporation
EILEEN A. MURPHY/Employment Representative, Bell of Pennsylvania
DR. EMORY RARIG/Dean, Division of Business, Bloomsburg State College
JUDY REITMEYER/Clerk-Steno II, Division of Foreign Languages, Philosophy, Anthropology & International Education, Bloomsburg State College
MARVIN STAIMAN/President, Staiman Brothers
FRANCIS J. TRIPOLI/Vice-President and Controller, Williamsport Hospital
JOHN TROISI/Troisi Men's Wear

Computer Science

RONALD BOYCE/Assistant Manager of Data Processing, Commonwealth Bank & Trust
JOE EMERY/Director of Administration, Sprout-Waldron, Koppers, Inc.
JAMES J. GORE/Data Processing Manager, Lycoming Division Avco
WILLIAM MILLER/Manager of Computer Operations, Williamsport National Bank
BLAINE E. MOYER/Senior Vice President of Operations Division, Northern Central Bank and Trust
DONALD T. ROUSCHE/Data Processing Manager, Stroehmann Brothers Company
RICHARD WEIGEL/Supervisor of Management Information Services, GTE Sylvania, Photoflash Plant

COMMUNICATIONS, HUMANITIES, SOCIAL SCIENCES

Broadcasting

IRVING BERNDT/Former Broadcasting Instructor, WACC
GALEN CASTLEBURY/Manager, WMPT, South Williamsport
GEORGE GILBERT/General Manager, WRAK-WKSB, Williamsport
LONNIE HILL/Announcer, WJSA, Jersey Shore
VANESSA HUNTER/News Director, WLYC-WILQ, Williamsport
JERRY LAKE/Announcer, WWPA, Williamsport
HARRIS LIPEZ/Manager, WBPZ, Lock Haven
W. WILLIAM OTT/Manager, WWPA, Williamsport
PAUL ROTHFUSS/Owner, Broadcast Group, Williamsport
CAREY SIMPSON/Manager, WTRN, Tyrone
RICK SMITH/Announcer, WKSB, Williamsport
LARRY SOUDER/Manager, WPGM, Danville
GARY STRAUSSER/General Manager, WKAD, Canton

Journalism

JOHN BROCKWAY/Production Superintendent, The Milton Standard, Milton
MAX L. COLEGROVE/Owner and Publisher, Penny Saver, Wellsboro and Advertiser, Mansfield
ALVIN N. ELMER/National News Editor, Grit, Williamsport
REBECCA F. GROSS/Editor Emeritus, The Lock Haven Express, Lock Haven
CLIFFORD A. THOMAS/Editor, Sun-Gazette, Williamsport

EARTH SCIENCE

Agribusiness

TED DOEBLER/Co-Owner, Doeblers of Pennsylvania Hybrids, Inc.
SAMUEL R. FRY/Farm Operator
JAMES GOTTSCHALL/Manager, Agway
PATRICIA HALLOWELL/Farm Operator
GORDON HILLER/Field Representative, DER
ROBERT REICH/General Manager, Farm Credit Service
GEORGE ROBINSON/Owner-Operator Feed Store
DR. GLENN STEVENS/Retired Professor
DAVID THOMPSON/Assistant Manager, Agway
FRANK WHITE/Farm Operator
THELMA WHITE/Farm Operator
WILLIAM WILLIAMS/Vice-President, Jersey Shore State Bank
ALLAN WOODWARD/Vice-President, Fidelity National Bank of Pennsylvania

Forest Technology

RAY AZZATO/Regional Park Superintendent, Bureau of Parks
DONALD BENSON/Salesman, Cotton Hanlon Company
WILLIAM BROOKS/Pulpwood Producer
DONALD CROFT/Forester, Pennsylvania Game Commission

ROY CUMMINGS, JR./Vice-President, Cummings Lumber Company
NELSON FOLSOM/Manager, Wood Procurement, Proctor & Gamble Paper Products Co.
ROBERT HERZ/Co-Owner, Eastern Wood Products
DAVID HUNTER, JR./Lumber Coordinator, General Interiors
FRANCIS X. KENNEDY/District Forester, Bureau of Forestry
LAWRENCE KUHNS/Co-Owner, Kuhns Brothers Lumber Company
LEONARD KUHNS/Co-Owner, Kuhns Brothers Lumber Company
PAUL LANDON/Timber Acquisition Manager, Proctor & Gamble Paper Products Co.
DWIGHT LEWIS/Owner, Lewis Sawmill
MELVIN LEWIS/Owner, Lewis Sawmill
STEVEN LISCINSKY/Wildlife Biologist, Pennsylvania Game Commission
R.G. MALLORY/President, Mallory Lumber Company
FRANCIS MITSTIFER/Co-Owner, Mitstifer Brothers Sawmill
JACK PAULHAMUS/District Forester, Bureau of Forestry
WALTER PEECHATKA/Executive Secretary, Commonwealth of Pennsylvania, Department of Environmental Resources, Bureau of Soil and Water Conservation
BROOKS REESE/Vice-President, Reese Lumber Company
RICHARD C. RODENBACH/Area Manager, Wood Procurement, Proctor & Gamble Paper Products Co.
A.E. STAMER/Wood Procurement, Masonite Corporation
EDWARD SWISHER/Wood Procurement Manager, Hammermill Paper Company
R.R. THORPE/Director, Bureau of Forestry
MICHAEL YEAGLE/Buyer, Maple Grove Mills

Horticulture

MARLIN E. ARBEGAST/Sales Representative, Loft's Pedigreed Seed
KENNETH BRYFOGLE/President, Bryfogle's, Inc.
DENNIS BURD/Owner, Country Market Landscape Garden Center
S. HOWARD DAVIS/Executive Director, Pennsylvania Nurseryman's Association
CHARLES DILLON/Manager, J.L. Dillon, Inc.
NEIL DUNKLE/Co-Owner, DAD's Lawn, Garden & Leisure Center
ROBERT ESHLEMAN/Owner-Manager, Eshleman's Nursery
CHRISTINE FINK/Designer
EDMUNDT GOLOMB/Owner-Manager, Andres Florist
ROSEMARY HOLMES/Co-Owner, Nevill's Flowers and Greenhouses
WILLIAM HOLMES/Co-Owner, Nevill's Flowers and Greenhouses
VINCENT KUHARIC/Owner, Kuharic Florist
BRIAN McCARTHY/Owner, Gene Smith Florist
PAUL MIKKELSEN/Independent Sales Representative
DAN MITCHELL/General Manager, The Conard-Pyle Company
BARRY PLOWMAN/Garden Center Manager, Shiloh Nurseries, Inc.
JAMES K. RATHMELL, JR./Professor, Floriculture Extension, Pennsylvania State University
KENNETH REESE/Educator
MIKE STEBBINS/Retail Manager, Shiloh Nurseries, Inc.
ARNOLD B. WAGNER/Executive Secretary, Pennsylvania Flower Growers
ALLAN WALTER/Owner-Operator, Whispering Pines Greenhouse
DONALD WERT/Owner-Manager, Wert Landscape Design
GARY WRIGHT/General Manager, Bryfogle's, Inc.

Service and Operation of Heavy Equipment

WILLIAM BASHISTA/President, Straight Line Construction Company, Inc.
RAY BOWEN/Sales Representative, Cleveland Brothers, Inc.
JOHN BRAUN/Lycoming Silica Sand Company
RUSSELL FAIRCHILD/President, Fairchild Brothers
ROBERT L. GEISEL/Personnel Director, L.B. Smith
CLAIR HOCK/Owner, Clair Hock Construction Company
BONNIE INGRAM/Soil Technician, SCS
GEORGE LOGUE/Owner, George E. Logue, Inc.
RAY LOTT/Technical Analyst, Cleveland Brothers, Inc.
J. MICHAEL MURPHY/Service Manager, Cleveland Brothers, Inc.
GEORGE MURRAY/Master Mechanic, Lycoming Construction Company
LEO O'BRIAN/Sales Representative, S.C. Hansen, Inc.
JAMES ROCKEY/Supervisor, Bureau of Forestry
GARY L. SNYDER/Service Manager, Cleveland Brothers, Inc.
ROBERT T. VINCENT, JR./Owner , Robert T. Vincent Company, Inc.
WILLIAM WAGNER/Construction Service Engineer, P.E., PennDOT
ROBERT WEBB/Sales Representative, Highway Equipment & Supply Company
A. ALLEN WOLESLAGLE/Manager, Forklifts, Inc.
FRANK WOLYNIEC, JR./Manager, Allenwood Equipment
JAMES WOLYNIEC/Vice President, Frank Wolyniec & Sons Construction

Wood Products Technology

DONALD D. BENSON/Cotton Hanlon
MAX BINGAMAN/Bingaman & Sons
ROBERT BUSHMAN/Mann & Parker Lumber Company
RONALD GALE/Wood Utilization Advisor, Department of Environmental Resources, Bureau of Forestry
ROBERT HERZ/Eastern Wood Products
DAVID HUNTER/Lumber Buyer, General Interiors
LEONARD KUHNS/Kuhns Brothers Lumber Company
MELVIN LEWIS/Sawmill Owner, Dwight Lewis Lumber Co., Inc.
JIM R. MATSON/Matson Lumber Company
JAY McCALL
EUGENE M. MERLOE/American Lumber
BROOKS REESE/Owner, Reese Lumber Company
GERALD SCHANBACHER

ELECTRIC/ELECTRONICS

Electrical Construction

KENNETH BREON/Electrical Contractor (Engineer)
HARRY FISLER/Manager Conservation Services, Pennsylvania Power and Light
GUY KOSER/Koser Electric Co., Inc.
MICHAEL LECCE/Lecce Electric Company
QUENTIN NOVINGER/Pennsylvania Power and Light
CARL SMOLLINGER/Bethlehem Steel Company

Electrical Technology

VIRGIL COLAVITTI/Proctor & Gamble, Charmin Plant
CHERYL DESMOND/Honeywell, Inc.
BERNIE DYMOND/Masonite Corporation
CHRIS HALL/Alcan Cable
JOHN HOUGH/Retired Professor, The Williamsport Area Community College
KIM KONYAR/Bethlehem Steel
ANGELO MARTINOZZI/Avco Corporation, Lycoming Division
CARLETON POLK/GTE Sylvania, Inc.
JOHN SHAFFER/Avco Corporation, Lycoming Division
JOHN TYLER/GTE Sylvania, Inc.

Electronics Technology

LEO BURIES/GTE Sylvania, Inc.
CARL CRAGER/GTE Sylvania, Inc.
JAMES HAMILTON/IBM
DONALD HILL/Divine Providence Hospital
VINCE LARKA/GTE Sylvania, Inc.
WILLIAM MATTOX/Bailey Meter Company
JACK MROCK/GTE Sylvania, Inc.
RICHARD PASCO/Litton Industries
EDWARD VIBERT/GTE Sylvania, Inc.

ENGINEERING AND DESIGN TECHNOLOGIES

Advertising Art

MAX AMEIGH/Professor of Art
ROBERT CRAIN/Art Director, Westvaco Corporation
FREDERICK T. GILMOUR III/Multi-Media Specialist, Williamsport Area School District
BERTON HEINRICH, JR./Art Director, Sprout-Waldron Koppers, Inc.
LARUE JOLIN
GENE L. SORTMAN/Design and Product Manager, Westvaco Corporation
HARRY WISNER/Art Director, Grit Publishing Company

Architectural Technology

DR. JUNE BASKIN/Director of Art, Williamsport Area School District
THOMAS B. BROWN/Assistant Professor, Architectural Engineering, Pennsylvania State University
NICHOLAS CATINO/George H. Roller Company, Inc. (WACC graduate)
M. ROBERT DESMARAIS/Associate Professor, Architecture, Pennsylvania State University
JOHN E. HOFFMAN/Architect
ALBERT LANDIS/Architectural Technician (WACC graduate)
EARL MOWREY/Contractor (WACC graduate)

Civil Technology

WARREN E. COLE/President, Lycoming Construction Company
ROBERT FERRELL/Civil Engineer
CLIFTON A. FRY, JR./U.S. Geological Survey, Map Requirement Branch
PAUL SOLOMAN/Soils Engineer, PA Dept. of Transportation
JERRY WALLS/Planner, Lycoming County
DONALD WILBUR/Chief Photogrammetry & Surveys, PA Dept. of Transportation

Drafting Technologies

JAY DAWES/Chief Draftsman, Anchor Darling Valve Co.
ROBERT HAUGH/Drafting Coordinator, Sprout-Waldron, Koppers, Inc.
HORACE HERLOCHER/Operator, Interaction Graphics, Anchor Darling Valve Co.
RONALD MOSER/Alcan Cable Co.
DAVID SHEASLEY/Technician, Sprout-Waldron, Koppers, Inc.
WILLIAM WELCH/Hammermill Paper Company
WILLIAM WOLFE/Piper Aircraft

Graphic Arts

ROBERT BITTING/President, Presto Print
NICHOLAS DEMKO/Prep Department, Reed Hann Litho
DICKSON DYER/Salesman, Penn Graphics Supply Company, Inc.
JAMES MILLER/Manager, Printing Department, Piper Aircraft
JAMES MUTCHLER/Instructor, SUN AVTS
MICHAEL THALER/Foreman, Data Papers, Inc.
JAMES WITHERS/Department Chairman, Williamsport Area School District

Machine Shop

KENNETH HEINLEN/Toolroom Foreman, LEMCO
RODNEY HUSTED/Industrial Engineer, Anchor Darling Valve Company
RAYMOND MARSHALEK/President, Fairfield Manufacturing
CON OHMNEIS/President, SEDCO
HILLERY SCHMOUDER/Toolroom Staff Supervisor, GTE Sylvania, Inc.

Sign Painting

WILLIAM BEST
ERNEST LUNDY (WACC graduate)
SUSAN MAGARGLE (WACC graduate)
GEORGE WRIGHT/Wright Sign Company

Welding

MERRILL BLOOM/President, B & B Welding Company
CLYDE CONFAIR/Expert Sales and Service
LYNN CRIST/Pullman Power Products, Division of Pullman, Inc.
DONALD FOLMAR/Folmar Welding
WILLIAM RUPRECHT/A.C. & F. Industries
OWEN SMITH
WILLIAM YOST/A.C. & F. Industries

MATHEMATICS, SCIENCE, ALLIED HEALTH

Dental Hygiene

DR. EUGENE W. CHIANELLI/Private Practice
DR. MORRIS JACOBSON/Private Practice
SANDRA NOLAN/District Dental Hygienist, PennDOT
PAMELA PARKS, R.D.H./Office of A. David Parks
DR. DANIEL WURSTER/Private Practice
DR. MENDAL VANVALIN/Private Practice

Food & Hospitality Management and Dietetic Technician

JOAN R. ALKIRE/Chief Dietitian, Williamsport Hospital
HARVEY BOATMAN/Wholesaler, Rinella Produce Company
RICHARD BURICK/Chef, Industry (WACC graduate)
MICHAEL GOODREAU/Manager, Penn-Wells Hotel
SISTER VINCENT HUBER/Dietitian, Divine Providence Hospital
JAN McLAUGHLIN, R.D./Food Service Director, Williamsport Area School District
SISTER MICHAELINE, R.D./Assistant Professor, Marywood College
WILLIAM O'BRIEN/Owner-Manager, Haven Bake Shop
VIOLA PFLEEGOR/Dietetic Technician, Methodist Home (WACC graduate)
DAVE SMITH/Night Manager, Country Cupboard (WACC graduate)
RICHARD WAPINSKI/Manager, Ponderosa Steak House (WACC graduate)
TRUDY WELSHANS/Manager, Hotel Mohawk

Operating Room Technician/Surgical Technician

NANCY BERGESEN, R.N./Director, Nursing Service, Divine Providence Hospital
DR. WILLIAM H. GEHRON, JR.
PATRICIA SOLLEY, R.N./O.R. Supervisor, Divine Providence Hospital
DR. WILLIAM D. TODHUNTER
SISTER M. EMILENE WEHNER, R.N./Administrator, Divine Providence Hospital

Practical Nursing

NANCY BERGESEN, R.N./Director of Nursing Service, Divine Providence Hospital
DORIS FAIRCHILDS, R.N./Director of Nursing Service, Muncy Valley Hospital
MARY FENTON, R.N./Administrator, Leader Nursing Home
DORIS HEIM, R.N./Director of Nursing Service, Lysock View Home and Hospital
JANICE HOFER, L.P.N.
JOANNE KREZMER, R.N./Administrator, Lysock View Home and Hospital

AL SPETH/Administrator, Lock Haven Hospital
MICHALINE SWANKOSKI, R.N./Director of Nursing Service, Lock Haven Hospital
GLADYS UPDEGROVE, R.N./Acting Director of Nursing, Williamsport Hospital
SISTER M. EMILENE WEHNER, R.N./Administrator, Divine Providence Hospital

Radiologic Technology

ROBERT ALBAN/Technologist, Divine Providence Hospital
SISTER AUGUSTA/Technologist, Divine Providence Hospital
FRANK ELLIS/Technologist, Williamsport Hospital
DR. HARMON MACHANIC/Radiologist, Divine Providence Hospital
DR. GORDON SHAW/Radiologist, Williamsport Hospital

TRANSPORTATION TECHNOLOGIES

Auto Body

RON BUDMAN/Owner, Budman's
RALPH HEATER/Owner-Operator, Ralph Heater Auto Body
DANIEL PLANKENHORN/Owner-Operator, Allied Auto
EDWON STROBLE, JR./Owner-Operator, Stroble's Garage
STEVEN WHIPPLE/Owner-Operator, Whipple's Auto Body

Auto Mechanics

ARTHUR BARR/Owner, Barr Motors, Inc.
CECIL CALVERT
VIRGIL FOWLER/Owner, Fowler Motors
THOMAS KEIPER/Owner, Goat Hair Co.
GENE YORKS/Service Manager, Van Campen Dodge

Auto Technology

GERALD ESHBACH/Service Manager, Larry Herron, Inc.
GARRY L. FOLTZ/Service Manager, Koerner Ford
ROBERT INGRAM/Engineer, Avco Corporation, Lycoming Division
DONALD KING/Owner-Operator, K & W Transmissions
RICK KOCHER/Engineer, Avco Corporation, Lycoming Division
LARRY STROUSE/Zone Representative, Sun Electronics

Aviation

ROBERT BARRETT/Foreman, Avco Service Center, Lycoming Division
KARL CRIST/Mechanic, Avco Service Center, Lycoming Division
ROBERT GIFT/Co-owner, Lock Haven Airmotive Company
CLYDE SMITH, JR./Service Inspector, Piper Aircraft
THOMAS YAGGI/Sales Representative, Cessna Aircraft

Diesel Mechanics

CHARLES ERNESTO/Branch Manager, Penske Detroit Diesel Allison
GEORGE FREDRICKS/Vice-President, General Manager, Diesel Service, Inc.
STANLEY KABATA/Shop Foreman, Pennsylvania Power and Light Company
C. D. KELLER/Co-owner, Operator, Keller & Schell
JOHN KELLY/Owner-Operator, Hunter & Lomison, Inc.
GEORGE TANNER/Branch Motor Express
WILLIAM THOMKE/General Manager, Nau & Thompson

Index of Courses

Abnormal Psychology (PSY 201) – 104
Abrasive Machining (MTT 641) – 98
Accident Prevention (ELT 113) – 90
Accounting I (ACC 112) – 74
Accounting II (ACC 122) – 74
Acetylene Welding (WEL 701) – 108
Acetylene Welding (WEL 712) – 108
Advanced Assembler Programming (CSC 237) – 84
Advanced Carpentry (BCT 241) – 81
Advanced Circuit Analysis (ENT 248) – 91
Advanced Detail I (EDT 241) – 88
Advanced Detail II (EDT 242) – 88
Advanced Electrical Construction (ELC 845) – 89
Advanced Electrical Theory (ELT 244) – 90
Advanced Motor Control (ELC 832) – 89
Advanced Forest Mensuration (FOR 124) – 94
Advanced Lifesaving (PED 161) – 102
Advanced Process Camera and Stripping (GCO 642) – 96
Advanced Quantity Foods (FHD 201) – 93
Advanced Surveying (CET 241) – 83
Advanced Typographic Composition (GCO 641) – 96
Advertising Design (ART 242) – 75
Agricultural Financing (AGB 124) – 75
Agricultural Sales and Service (AGB 249) – 75
Air Conditioning (AMD 636) – 78
Air Conditioning/Refrigeration Electricity (ELT 531) – 90
Air Conditioning/Refrigeration Work Experience (ACR 250) – 76
Air Movement & Ventilation (ACR 241) – 76
Aircraft Drawings (EDT 104) – 88
Airframe I (APC 832) – 79
Airframe II (APC 841) – 79
Alternating Current Fundamentals (ELC 722) – 89
Alternating Current Fundamentals (ELT 122) – 90
American Government–National (GOV 231) – 95
Animal Production (AGB 236) – 75
Announcing Techniques (BRC 233) – 80
Applied Calculus (MTH 107) – 99
Applied Drafting Techniques (EDT 232) – 88
Applied Human Physiology (BIO 110) – 79
Architectural Drafting (IND 844) – 97
Architectural Graphics I (ARC 112) – 76
Architectural Graphics II (ARC 122) – 76
Arithmetic (MTH 001) – 87, 98
Assembler Language Programming (CSC 127) – 84
Auditing (ACC 246) – 74
Auto Body Maintenance (ABC 723) – 77
Automatic Machines (MTT 521) – 98
Automatic Transmission Repair (AMD 635) – 78

Banking and Investments (MGT 237) – 80
Basic Algebra (MTH 002) – 87, 98
Basic Anatomy and Physiology (BIO 121) – 79
Basic Architectural Drafting (ARC 102) – 76
Basic Auto Body (ABC 713) – 77
Basic Botany (Horticulture) (BIO 111) – 79
Basic Drafting (IND 714) – 96
Basic Drafting I (EDT 111) – 88
Basic Drafting II (EDT 112) – 88
Basic Drawing (ART 111) – 74
Basic Electrical Construction Lab (ELC 833) – 89
Basic Electrical Construction Lab (ELT 123) – 90

Basic Electronics (ELT 233) – 90
Basic Electronics for Industry (ELC 834) – 89
Basic Engines (AMC 726) – 77
Basic English (ENL 011) – 86, 92
Basic Language Programming (CSC 242) – 85
Basic Motor Control (ELC 721) – 89
Basic Painting (ART 121) – 74
Basic Wiring Lab (ELC 712) – 89
Basic Wiring Lab (ELT 112) – 90
Beginning German I (GER 111) – 95
Beginning German II (GER 121) – 95
Beginning Spanish I (SPA 111) – 108
Beginning Spanish II (SPA 121) – 108
Beverage Management & Catering (FHD 241) – 93
Block Construction (BCT 122) – 81
Blueprint Reading (EDT 107) – 88
Blueprints and Specifications (CNC 833) – 82
Body Structure and Function (ORT 710) – 100
Brakes and Suspension (AMC 716) – 77
Brakes, Chassis and Suspension (AMD 124) – 78
Brick and Stone (CNC 713) – 82
Brick Construction (BCT 232) – 81
Building Construction Technology (BCT 242) – 81
Building Equipment I (ARC 233) – 77
Building Equipment II (ARC 242) – 77
Building Materials I (ARC 116) – 76
Building Materials II (ARC 232) – 76
Building Trades Estimating (CNC 843) – 82
Business Communications (MGT 230) – 80
Business Computer Applications (CSC 120) – 84
Business Law I (MGT 231) – 80
Business Law II (MGT 241) – 80
Business Mathematics (MGT 111) – 80
Business Psychology (MGT 235) – 80

Calculus I (MTH 238) – 99
Calculus II (MTH 248) – 99
Calibration and Standardization (ENT 241) – 91
Career Exploration (CHD 101) – 86
Children's and Young Adult Literature (EDU 121) – 89
Civil Drafting (IND 834) – 96
Clerical Procedures (CLS 717) – 105
Clerical Workshop (CLS 728) – 105
Clinical Dental Hygiene I (DHG 124) – 86
Clinical Dental Hygiene II (DHG 230) – 86
Clinical Dental Hygiene III (DHG 242) – 86
COBOL Programming I (CSC 128) – 84
COBOL Programming II (CSC 238) – 85
College Algebra (MTH 103) – 99
College Reading and Study Skills (RDG 101) – 87
College Study Skills (RDG 102) – 87
College Trigonometry (MTH 104) – 99
Color and Design (ART 231) – 74
Commercial & Industrial Blueprint Reading (ELC 844) – 89
Commercial Refrigeration Systems (ACR 521) – 76
Communication Circuits and Systems (ENT 233) – 91
Communications (ENL 711) – 92
Community Aspects of Broadcasting (BRC 242) – 80
Community Dental Health (DHG 241) – 86
Computer Operations Internship (COP 724) – 84
Computer Operations I (COP 713) – 83
Computer Operations II (COP 723) – 84
Computer Software Systems (CSC 245) – 85
Concrete and Block (CNC 712) – 81
Concrete Construction (BCT 243) – 81
Construction Carpentry (BCT 112) – 81
Cooperative Education I (CED 101) – 85
Cooperative Education II (CED 102) – 85
Cooperative Education III (CED 103) – 85
Copyreading and Editing (JOU 232) – 97
Cost Accounting (ACC 231) – 74
Creative Writing (ENL 235) – 92
Criminology (SOC 242) – 107

Dairy Production (AGB 125) – 75
DC-AC Theory (ENT 111) – 90
Dendrology (FOR 111) – 94
Dental Materials (DHG 121) – 86
Dental Practice Orientation (DHG 244) – 86
Dental Specialties (DHG 243) – 86
Descriptive Geometry (EDT 201) – 88
Design Studio I (ARC 236) – 77
Design Studio II (ARC 246) – 77
Detail and Assembly Drawings (EDT 231) – 88
Developmental Psychology (PSY 203) – 104
Die Design (TDT 242) – 108
Diet Therapy with Dietetic Seminar (FHD 122) – 93
Direct Current Fundamentals (ELC 711) – 89
Direct Current Fundamentals (ELT 111) – 90
Dynamics (EIT 203) – 91

Ecology (BIO 208) – 79
Economic Analysis (ECO 202) – 88
Educational Psychology (PSY 231) – 104
Electric and Fuel (AMC 725) – 77
Electric Motors and Refrigeration Controls (ELT 541) – 90
Electric Welding (WEL 703) – 108
Electric Welding (WEL 722) – 108
Electrical and Electronic Drafting (IND 845) – 97
Electrical Construction Blueprint Reading (ELT 242) – 90
Electrical Machinery, Analysis and Repair (ELC 846) – 89
Electrical Motor Control (ELT 234) – 90
Electrical Systems Analysis (ELT 241) – 90
Electricity for the Trades (ELT 110) – 90
Electronics Laboratory I (ENT 115) – 90
Electronics Laboratory II (ENT 126) – 91
Electronics Laboratory III (ENT 237) – 91
Electronics Laboratory IV (ENT 247) – 91
Elementary Accounting (ACC 121) – 74
Elementary Statistics I (MTH 201) – 99
Elementary Statistics II (MTH 202) – 99
Engine Overhaul (AMD 637) – 78
Engineering Chemistry (EIT 207) – 92
Engineering Drafting (EDT 102) – 88
Engineering Drawing (CET 112) – 83
Engineering Economics (EIT 206) – 92
Engineering Electronics (EIT 210) – 92
Engineering Physics (EIT 209) – 92
Engines (AMD 114) – 78
English Composition I (ENL 111) – 92
English Composition II (ENL 121) – 92
Environmental Science (ESC 100) – 92
Equipment and Layouts (FHD 245) – 94
Equipment and Machinery (FOR 233) – 94
Equipment and Machinery (WPT 244) – 108
Estimating and Blueprints (BCT 121) – 81
Ethics and Political Philosophy (PHL 121) – 101
Exterior Finish (CNC 722) – 82

Farm Management (AGB 248) – 75
Fashion Merchandising (MKT 246) – 98
Feature Writing (JOU 231) – 97
Field & Forage Crop Production (AGB 123) – 75
Field Experience in Management Systems I (FHD 113) – 93
Field Experience in Management Systems II (FHD 123) – 93
Field Experience in Management Systems IV (FHD 231) – 93
Field Experience in Management Systems V (FHD 242) – 94
Film Assembly and Imposition (GCO 522) – 95
Film Assembly and Imposition (GCO 526) – 95
Finance (MGT 125) – 80
Fixture Design (TDT 232) – 108
Floral Design I (FLR 122) – 100
Floral Design II (FLR 233) – 100
Flower Shop Operation (FLR 244) – 100
Fluid Mechanics (CET 242) – 83
Fluid Mechanics (EIT 204) – 91
Forest Botany (FOR 115) – 94
Forest Ecology and Wildlife Management (FOR 126) – 94
Forest Land Management and Recreation (FOR 247) – 94
Forest Mensuration (FOR 113) – 94
Forest Products (FOR 242) – 94
Forest Protection (FOR 248) – 94
Forest Surveying II (FOR 232) – 94
Fortran and Linear Programming (CSC 234) – 84
Fortran IV Programming (CSC 100) – 84
Foundations of Nursing (NUR 710) – 104
Four Cycle Diesel Engines (DMC 723) – 87
Framing and Sheathing (CNC 721) – 82
Front Office Management & Housekeeping (FHD 126) – 93
Fuel and Electrical (AMD 113) – 78
Fuel Injection Systems I (DMC 833) – 87
Fuel Injection Systems II (DMC 834) – 87
Fundamentals of Chemistry (CHM 100) – 82
Fundamentals of Computer Science (CSC 118) – 84
Fundamentals of Speech (ENL 202) – 92

Gage Design and Programming (TDT 241) – 108
Gears and Cams (EDT 103) – 88
Gears, Cams and Mechanisms (IND 724) – 96
General Airframe and Powerplant (APC 711) – 78
General and Oral Pathology (DHG 239) – 86
General Anthropology (SOC 112) – 107
General Aviation Mathematics (MTH 715) – 99
General Biology I (BIO 113) – 79
General Biology II (BIO 123) – 79
General Botany (BIO 203) – 79
General Chemistry I (CHM 111) – 82
General Chemistry II (CHM 121) – 82
General Organic Chemistry (CHM 105) – 82
General Organic Chemistry (CHM 107) – 82
General Physics I (PHS 116) – 102
General Physics II (PHS 126) – 103
General Psychology (PSY 111) – 104
Greenhouse Crop Production I (FLR 121) – 100
Greenhouse Crop Production II (FLR 232) – 100
Greenhouse Crop Production III (FLR 243) – 100

Health Care Delivery Systems (FHD 234) – 93
Heat Treatment and Cutter Grinding (MTT 642) – 98
Heating and Air Conditioning I (HAC 711) – 96
Heating and Air Conditioning II (HAC 721) – 96

Heating and Air Conditioning III (HAC 731) – 96
Herbaceous Plants (OHT 116) – 101
Highway Engineering Technology (CET 234) – 83
Historical Geology (GEL 106) – 95
Horticulture Mechanics (OHT 246) – 101
Horticulture Soils (OHT 114) – 101
Hospitality, Dietetic Work Experience (FHD 250) – 94
Hospitality Management & Theory (FHD 236) – 93
Hospitality Merchandising (FHD 246) – 94
House and Conservatory Plants (FLR 245) – 100
Human Anatomy and Physiology I (BIO 115) – 79
Human Anatomy and Physiology II (BIO 125) – 79

Income Tax Accounting (ACC 125) – 74
Independent Study (RDG 099) – 87
Industrial Metrology (MTT 522) – 98
Industrial Motor Control (ELC 843) – 89
Industrial Processes (EDT 106) – 88
Inert Gas Welding (WEL 832) – 108
Installation & Service Problems – Air Conditioning (ACR 232) – 75
Installation & Service Problems – Commercial Refrigeration (ACR 522) – 76
Insurance (MGT 238) – 80
Intermediate Accounting I (ACC 232) – 74
Intermediate Accounting II (ACC 244) – 74
Intermediate Algebra (MTH 105) – 99
Intermediate Digital Electronics (ENT 238) – 91
Intermediate Solid State Devices and Circuits (ENT 125) – 90
Interior Finish (CNC 831) – 82
Interior Trim (CNC 832) – 82
Internal Combustion Engines (DMC 714) – 87
Internship (JOU 242) – 97
Internship/Co-op (AGB 240) – 75
Internship in Computer Systems (CSC 247) – 85
Introduction to Agricultural Business (AGB 111) – 75
Introduction to Art (ART 233) – 75
Introduction to Broadcasting (BRC 110) – 79
Introduction to Dental Hygiene (DHG 100) – 85
Introduction to Diesel Mechanics (DMC 713) – 87
Introduction to Digital Electronics (ENT 127) – 91
Introduction to Education (EDU 111) – 89
Introduction to Food Service Administration & Medical Care Organizations (FHD 114) – 93
Introduction to Mathematics I (MTH 101) – 98
Introduction to Mathematics II (MTH 102) – 99
Introduction to Metallurgy (PHS 106) – 102
Introduction to Microprocessors (ENT 246) – 91
Introduction to Philosophical Analysis (PHL 111) – 101
Introduction to Radio Station Operation (BRC 125) – 80
Introduction to Refrigeration (ACR 511) – 76
Introduction to Social Work (SOC 121) – 107
Introduction to Sociology (SOC 111) – 107
Introduction to Solid State Devices (ENT 116) – 90
Introductory Foods (FHD 111) – 93
Introductory Newspaper Production (JOU 122) – 97
Introductory Physics (PHS 112) – 102
Introductory Surveying (CET 113) – 83

Landscape Construction (NMG 245) – 101
Landscape Design (NMG 249) – 101
Landscape Maintenance (NMG 248) – 101
Layout and Design (GCO 511) – 95
Layout and Design (GCO 515) – 95
Lettering and Layout (ART 232) – 74
Library Skills (RDG 103) – 87
Lumber and Log Grading (WPT 121) – 108
Lumber Drying (WPT 123) – 108

Machine Drafting (IND 715) – 96
Machining I (MTT 511) – 97
Machining II (MTT 512) – 97
Managerial Accounting (ACC 230) – 74
Marketing (MKT 240) – 98
Marriage and the Family (SOC 231) – 107
Materials of Construction (CET 111) – 83
Matrix Algebra (MTH 204) – 99
Mechanical Drawing (EDT 101) – 88
Mechanics (PHS 202) – 103
Mechanisms (EDT 122) – 88
Media and Techniques (ART 241) – 75
Medical-Surgical Nursing – Elementary (NUR 723) – 104
Medical-Surgical Nursing – Intermediate (NUR 735) – 104
Medical Terminology I (MTR 101) – 100
Medical Terminology II (MTR 102) – 100
Menu Planning and Cost Control (FHD 125) – 93
Metal Work (ABC 714) – 77
Metal Work and Filling (ABC 833) – 77
Microbiology (BIO 201) – 79
Modern Physics (PHS 236) – 103
Motor Rewinding (ELC 713) – 89

News Writing (JOU 111) – 97
News Writing for Radio (BRC 123) – 80
Newspaper Management and Production (JOU 233) – 97
Newspaper Organization and Community Responsibility (JOU 241) – 97
Nursery Production I (NMG 121) – 101
Nursery Production II (NMG 232) – 101
Nursing Relationships (NUR 711) – 104
Nutrition (FHD 112) – 93

Office Internship (SEC 245) – 106
Office Procedures (MGT 124) – 79
Operating Room Techniques I (ORT 711) – 100
Operating Room Techniques II (ORT 720) – 100
Oral Anatomy and Histology (DHG 115) – 85
Oral Radiology (DHG 120) – 85
Organic Chemistry I (CHM 203) – 82
Organic Chemistry II (CHM 204) – 82
Origin, Distribution & Behavior of Soils (CET 232) – 83

Painting (ABC 834) – 77
Painting and Estimating (ABC 844) – 77
Panel Alignment (ABC 724) – 77
Parental and Child Health (NUR 724) – 104
Periodontics I (DHG 123) – 86
Periodontics II (DHG 236) – 86
Personal and Community Health (PED 201) – 102
Personal and Job Orientation (CNC 844) – 82
Personnel Management, Work Simplification (FHD 235) – 93
Pharmacology and Emergencies (DHG 237) – 86
Photogrammetry (CET 244) – 83
Photogrammetry and Forest Surveying I (FOR 121) – 94
Physical Education (PED 100) – 101
Physical Education (PED 120) – 101
Physical Education (PED 140) – 102
Physical Education (PED 160) – 102
Physical Geography (GEO 101) – 95
Physical Geology (GEL 105) – 95
Physics – Electricity and Magnetism (PHS 102) – 102
Physics – Heat and Light (PHS 101) – 102
Physics – Mechanics (PHS 100) – 102
Physics Survey (PHS 500) – 103
PL/1 Programming (CSC 246) – 85
Plane Surveying (CET 121) – 83
Plant Insects and Diseases (OHT 239) – 101
Plant Propagation (OHT 234) – 101
Platemaking, Substrates and Finishing (GCO 631) – 96
Plumbing and Heating I (PLH 711) – 103
Plumbing and Heating II (PLH 712) – 103
Plumbing and Heating III (PLH 721) – 103
Plumbing and Heating IV (PLH 722) – 103
Plumbing and Heating V (PLH 833) – 103
Plumbing and Heating VI (PLH 832) – 103
Plumbing and Heating VII (PLH 841) – 103
Plumbing and Heating VIII (PLH 842) – 103
Power Train – Standard (AMC 715) – 77
Power Transmission (EDT 121) – 88
Powerplant I (APC 712) – 78
Powerplant II (APC 721) – 78
Powerplant III (APC 831) – 78
Practical Construction Experience (CNC 842) – 82
Practicum (NUR 736) – 104
Press Operations (GCO 632) – 96
Principles of Advertising (ADV 101) – 74
Principles of Business (MGT 110) – 80
Principles of Economics (ECO 201) – 88
Principles of News Photography (JOU 113) – 97
Printing Estimating Practices (GCO 635) – 96
Printing Processes (GCO 645) – 96
Process Camera (GCO 521) – 95
Process Camera (GCO 525) – 95
Production Management (WPT 243) – 108
Professional Administration & Contract Documents (ARC 244) – 77
Purchasing, Storage, and Sanitation (FHD 115) – 93

Quality Control (WPT 233) – 108
Quantity Food Preparation (FHD 121) – 93

Radiation Physics (PHS 122) – 103
Radio Station Operation and Management (BRC 235) – 80
Radiologic Technology I (RAD 110) – 104
Radiologic Technology II (RAD 120) – 105
Radiologic Technology III (RAD 230) – 105
Radiologic Technology IV (RAD 240) – 105
Reading Improvement (RDG 010) – 87
Real Estate Appraisal (RES 114) – 105
Real Estate Financing (RES 116) – 105
Real Estate Fundamentals (RES 112) – 105
Real Estate Law (RES 113) – 105
Real Estate Management (RES 117) – 105
Real Estate Math (RES 119) – 105
Real Estate Practice (RES 115) – 105
Real Estate Principles II (RES 212) – 105
Real Estate Taxes (RES 120) – 105
Reporting Public Affairs (JOU 121) – 97
Residential Blueprint and Code (ELC 723) – 89
Residential Blueprint Reading/National Electrical Code (ELT 121) – 90

Retail Merchandising I (MKT 234) – 98
Retail Merchandising II (MKT 244) – 98
Retailing (MGT 242) – 81
Roof-Framing Theory (BCT 231) – 81
Route Surveying (CET 231) – 83
RPG Programming I (CSC 119) – 84
RPG Programming II (CSC 249) – 85

Sales (MGT 243) – 81
Sales (MKT 243) – 98
Sawmilling I (WPT 122) – 108
Sawmilling II (WPT 232) – 108
Scientific Principles Relating to Nursing (NUR 712) – 104
Secretarial Procedures (SEC 129) – 106
Secretarial Workshop (SEC 244) – 106
Seminar in Architectural History (ARC 237) – 77
Service and Operation I (SOE 713) – 106
Service and Operation II (SOE 714) – 106
Service and Operation III (SOE 725) – 106
Service and Operation IV (SOE 726) – 107
Service and Operation V (SOE 837) – 107
Service and Operation VI (SOE 838) – 107
Service and Operation VII (SOE 847) – 107
Service and Operation VIII (SOE 848) – 107
Service Procedures (AMD 232) – 78
Sheet Metal and Piping (IND 725) – 96
Shorthand I (SEC 114) – 106
Shorthand II (SEC 124) – 106
Shorthand Workshop (SEC 234) – 106
Sign Painting I (SIG 711) – 107
Sign Painting II (SIG 721) – 107
Sign Painting III (SIG 811) – 107
Sign Painting IV (SIG 821) – 107
Silviculture (FOR 236) – 94
Small Business Management (MGT 247) – 81
Small Engine Repair (SER 711) – 107
Social Psychology (PSY 241) – 104
Soils, Fertilizer, and Agricultural Chemicals (AGB 112) – 75
Solar Heat/Energy Conservation (ACR 242) – 76
Special Studies in Biology (BIO 290) – 79
Special Studies in Economics (ECO 290) – 88
Special Studies in English (ENL 290) – 92
Special Studies in Geology (GEL 290) – 95
Special Studies in Government (GOV 290) – 95
Special Studies in History (HIS 290) – 96
Special Studies in Psychology (PSY 290) – 104
Special Studies in Sociology (SOC 290) – 107
Special Topics in Agribusiness (AGB 237) – 75
Special Topics in Chemistry (CHM 290) – 82
Special Topics in Mathematics (MTH 290) – 99
Specialty and Related Trades (CNC 841) – 82
Standard Power Train (AMD 123) – 78
State and Local Government (GOV 241) – 95
State Inspection Repairs (AMD 634) – 78
Statics (ARC 111) – 76
Statics (CET 233) – 83
Statics (EIT 201) – 91
Strength of Materials (CET 243) – 83
Strength of Materials I (EIT 202) – 91
Strength of Materials II (EIT 205) – 91
Structural Drafting (IND 835) – 97
Structures – Concrete (ARC 247) – 77
Structures – Steel (ARC 238) – 77
Structures – Wood (ARC 121) – 76
Summer Internship (RAD 200) – 105
Supervised Clinical Experience (ORT 721) – 100
Supervision and Human Relations (MGT 248) – 81
Survey of Radio Industry (BRC 241) – 80
Surveying, Layout & Blueprint Reading (CNC 711) – 81
Systems Analysis and Design (CSC 241) – 85

Technical Commercial Radio Operation (BRC 115) – 79
Technical Mathematics I (MTH 710) – 99
Technical Mathematics II (MTH 500) – 99
Technical Writing (ENL 201) – 92
Theory & Operation of Air Conditioning & Heating Systems (ARC 231) – 75
Thermodynamics (EIT 208) – 92
Timber Harvesting (FOR 234) – 94
Tool Drafting (TDT 231) – 108
Tooling Technology I (MTT 631) – 98
Tooling Technology II (MTT 632) – 98
Tools, Equipment and Collision Repairs (ABC 843) – 77
Topographic Drawing & Cartography (CET 122) – 83
Truck Tractor Chassis (DMC 844) – 87
Truck Tractor Power Train (DMC 843) – 87
Two-Cycle Diesel Engines (DMC 724) – 87
Typewriting (SEC 509) – 106
Typewriting I (SEC 111) – 106
Typewriting II (SEC 121) – 106
Typewriting III (SEC 231) – 106
Typographic Composition (GCO 512) – 95
Typographic Composition (GCO 516) – 95

United States – Survey I (HIS 231) – 96
United States – Survey II (HIS 241) – 96
Urban Sociology (SOC 241) – 107

Value Clarification and Decision Making (CHD 100) – 86
Vehicle Performance Analysis (AMC 844) – 78

Welding (Advanced) (WEL 842) – 108
Western Civilization I (HIS 111) – 96
Western Civilization II (HIS 121) – 96
Wood Industry Co-op/Internship (WPT 231) – 108
Wood Properties and Utilization (WPT 111) – 108
Woodworking for Carpenters (BCT 111) – 81
Woody Plants I (OHT 115) – 101
Woody Plants II (NMG 126) – 101
Woody Plants III (NMG 237) – 101
Word Processing I (SEC 232) – 106
Working Drawings – Commercial (ARC 125) – 76
Working Drawings – Residential (ARC 115) – 76
World Literature (ENL 231) – 92

Index

Academic Advisors – 109
Academic Information – 113
Academic Probation – 121
Academic Progress for Students Receiving Financial Aid – 11
Acceptance and Admission Preference – 3
Accounting Courses (ACC) – 74
Accounting Program (BA) – 17
Act 101 (COPing) – 122
Admission – 3
Admission of International Students – 5
Admission Policy – 3
Admission Preference, Acceptance and – 3
Admission Procedure – 4
Adding a Course – 114
Advanced Placement Credit – 116
Advertising Art Courses (ART) – 74
Advertising Art Program – (AR) – 18
Advertising Courses (ADV) – 74
Advisors – 109
Advisory Councils – 131
Agribusiness Courses (AGB) – 75
Agribusiness Program (AG) – 19
Air Conditioning/Refrigeration Courses (ACR) – 75
Air Conditioning/Refrigeration Programs (RA) – 20,21
Application and Application Fee – 4
Application Fee – 4,8
Architectural Technology Courses (ARC) – 76
Architectural Technology Program (AT) – 22
Army Reserve Officers Training Corps (ROTC) – 111
Associate Degrees – 13
  Associate of Applied Arts (AAA) – 13
  Associate of Applied Science (AAS) – 13
  Associate of Arts (AA) – 14
Associate of Applied Arts (AAA) – 13
Associate of Applied Science (AAS) – 13
Associate of Arts (AA) – 14
Athletics – 111
Attendance Policy – 121
Auditing a Course – 115
Auto Body Repair Courses (ABC) – 77
Auto Body Repair Program (AB) – 23
Automotive Courses (ABC, AMC, AMD) – 77
Automotive Mechanics Courses (AMC) – 77
Automotive Mechanics Program (AM) – 24
Automotive Technology Courses (AMD) – 78
Automotive Technology Program (AU) – 25
Aviation Courses (APC) – 78
Aviation Maintenance Technician Program (AC) – 26

Biology Courses (BIO) – 79
Board of Trustees – 1
Books and Supplies – 9
Broadcasting Courses (BRC) – 79
Broadcasting Program (BR) – 27
Business Administration Emphasis – 66
Business Management Courses (MGT) – 80
Business Management Program (BM) – 28

Calendar – 140
Campus Life – 111
Career Development, Counseling and – 109
Carpentry and Building Construction Technology Courses (BCT) – 81
Carpentry and Building Counstruction Technology Program (CB) – 29
Carpentry Courses (BCT & CNC) – 81
Center for Lifelong Education – 123
Certificate in Special Field of Study – 14
Change of Course – 114
Change of Program – 114
Cheerleading – 111
Chemistry Courses (CHM) – 82
Civil Engineering Technology Courses (CET) – 83
Civil Engineering Technology Program (CT) – 30
Classification of Students – 113
Clerical Studies Courses (CLS) – 105
Clerical Studies Program (BT) – 31
Clubs – 112
College Directory – 127
College and University Transfer Programs – 65
College Colors and Nickname – 111
College Credit Earned Before High School Graduation – 7
College Level Examination Program (CLEP) – 7
College Transfer – 109
Commencement Awards – 125
Communications Emphasis – 67

Computer Operator Courses (COP) – 83
Computer Operator Program (CO) – 31
Computer Science Courses (CSC) – 84
Computer Science Technology Program (CS) – 32
Construction Carpentry Courses (CNC) – 81
Construction Carpentry Program (CC) – 33
Cooperative Education – 118
Cooperative Education Courses (CED) – 85
COPing – 122
Counseling and Career Development – 109
Counselors – 109
Course Descriptions – 73
Credit by Exam – 117
Credit for Work/Life Experience – 117
Credit Load – 114
Credit Overload – 114
Cross Registration (Lycoming) – 118
Cumulative Grade Point Average – 115

Dean's Honor List – 120
Deferred Payment – 9
Dental Hygiene Courses (DHG) – 85
Dental Hygiene Program (DH) – 34
Developmental Studies – 122
Developmental Studies Courses (CHD, ENL, MTH, RDG) – 86
Diesel Mechanics Courses (DMC) – 87
Diesel Mechanics Program (DM) – 35
Dietetic Technician Program (DT) – 36
Divisions and Programs (listing) – 15
Drafting – Engineering Courses (EDT) – 88
Dropping a Course – 114

Early Admission – 4
Economics Courses (ECO) – 88
Education Courses (EDU) – 89
Education Emphasis – 67
Electric Courses (ELC & ELT) – 89
Electrical Construction Courses (ELC) – 89
Electrical Construction Program (EW) – 37
Electrical Technology Courses (ELT) – 90
Electrical Technology Program (EL) – 38
Electronics Courses (ENT) – 90
Electronics Technology Program (ET) – 39
Employment – 10
Engineer in Training Courses (EIT) – 91
Engineer in Training Exam Preparation (EIT) – 71
Engineering Drafting Courses (EDT) – 88
Engineering Drafting Technology Program (ED) – 40
English Courses (ENL) – 92
Environmental Science Courses (ESC) – 92
Exam Preparation – 71
  Engineer in Training – 71
  Real Estate – 71

Facilities – 7
Faculty – 128
Fees for Students Enrolling for Overload Credits – 8, 114
Final Examinations – 121
Financial Aid – 10
First Year Students – 113
Floriculture Courses (FLR) – 100
Floriculture Program (FL) – 41
Food and Hospitality Courses (FHD) – 93
Food and Hospitality Management Program (FH) – 42
Foreign Studies – 117
Forest Technology Courses (FOR) – 94
Forest Technology Program (FR) – 43
Full-Time Students – 113

General Equivalency Diploma (GED) – 4
General Studies Program – 65
Geography Courses (GEO) – 95
Geology Courses (GEL) – 95
German Courses (GER) – 95
Good Standing for Students Receiving Financial Aid – 11
Government Courses (GOV) – 95
Grade Reports – 116
Grading System – 115
Graduation Fees – 9
Graduation Requirements – 119
Graphic Arts Courses (GCO) – 95
Graphic Arts Program (GA) – 44

Health Records – 4
Health Services – 7
Heating and Air Conditioning Courses (HAC) – 96
Heating and Air Conditioning Program (HA) – 72
High School Graduation – 4
History Courses (HIS) – 96
Honor List – 120
Housing – 7

Index of Courses – 135
Individual Studies Program – 70
Industrial Drafting Courses (IND) – 96
Industrial Drafting Program (ID) – 45
Insurance, Student Accident – 7
International Students, Admission of – 5

Journalism Courses (JOU) – 97
Journalism Program (JO) – 46

Lewisburg Federal Penitentiary Programs – 72
Lycoming Cross Registration – 118

Machine Tool Technology and Machinist General Courses (MTT) – 97
Machine Tool Technology Program (TT) – 47
Machinist General and Machine Tool Technology Courses (MTT) – 97
Machinist General Program (MG) – 48
Management, Business Courses (MGT) – 80
Marketing/Merchandising Courses (MKT) – 98
Marketing/Merchandising Program (MM) – 49
Math-Science Emphasis – 68
Mathematics Courses (MTH) – 98
Medical Terminology Courses (MTR) – 100

Non-Degree Students – 7, 113
Nursery Management Courses (NMG) – 101
Nursery Management Program (NM) – 50

Operating Room Technician Courses – Surgical Technology (ORT) – 100
Operating Room Technician Program – Surgical Technology (OT) – 51
Orientation – 109
Ornamental Horticulture Courses (FLR, NMG, OHT) – 100
Ornamental Horticulture Courses (OHT) – 101
Overload Credits – 114
Overload Credits, Fees – 8, 114

Part-Time Students – 113
Petition to Graduate – 119
Philosophy Courses (PHL) – 101
Physical Education Courses (PED) – 101
Physics Courses (PHS) – 102
Placement – 110
Placement Examinations – 4
Plumbing and Heating Courses (PLH) – 103
Plumbing and Heating Program (PL) – 52
Practical Nursing Courses (NUR) – 104
Practical Nursing Program (NU) – 53
Pre-Law Emphasis – 68
Pre-Medical Emphasis – 69
Pre-Theological Emphasis – 69
Printing Program (GP) – 54
Probation, Academic – 121
Psychology Courses (PSY) – 104
Publications – 112

Radiologic Technology Courses (RAD) – 104
Radiologic Technology Program (RT) – 55
Real Estate Courses (RES) – 105
Real Estate Exam Preparation (RES) – 71
Re-Enrollment – 6
Refunds, Withdrawals and – 10
Registration – 114
Repeating a "D" or "F" Course – 115
Respiratory Therapy Program (HC) – 56
Retention Data, Student – 7
ROTC – 111

Satisfactory Progress – 113
Second Year Students – 113
Secondary Vocational Program – 124
Secretarial Science and Clerical Studies Courses (CLS & SEC) – 105
Secretarial Science Courses (SEC) – 106
Secretarial Science Program – Executive (BS) – 56
Secretarial Science Program – Legal (BS) – 57
Secretarial Science Program – Medical (BS) – 57
Service and Operation of Heavy Construction Equipment Courses (SOE) – 106
Service and Operation of Heavy Construction Equipment Program (SO) – 58
Service Credit – 7
Sign Painting Courses (SIG) – 107
Sign Painting Program (SP) – 59
Small Engine Repair Courses (SER) – 107
Small Engine Repair Program (SE) – 72
Social/Cultural/Recreational Activities – 112
Social Work Emphasis – 70
Sociology Courses (SOC) – 107
Spanish Courses (SPA) – 108
Special Student – 113
Special Topics Courses – 73
Sponsor School Districts – Inside front cover
Staff – 127
Student Accident Insurance – 7
Student Development Services – 109
Student Conduct – 120
Student Government – 112
Student Retention Data – 7
Surgical Technology Courses – Operating Room Technician (ORT) – 100
Surgical Technology Program – Operating Room Technician (OT) – 51

Technical Illustration Program (TI) – 60
Technology Studies Program (TS) – 61
Tool Design Technology Courses (TDT) – 108
Tool Design Technology Program (TD) – 62
Tools – 9
Tot Watch – 110
Transcripts – 9
Transfer Credit – 6
Transfer from Another Institution – 6
Transfer Students – 6
Tuition and Fees – 8
Tuition Deposit – 5,8

United States Armed Forces Institute Credit (USAFI) – 7

Veterans Information – 10
Vocational Diagnostic Program – 110

Welding Courses (WEL) – 108
Welding Program (WE) – 63
Withdrawal From College – 120
Withdrawals and Refunds – 10
Withholding Grades – 116
Wood Products Technology Courses (WPT) – 108
Wood Products Technology Program (WD) – 64

CALENDAR

1981

FALL SEMESTER

August

Mon.	17	Convocation
Tue.	18	Late Registration
Wed.	19	Orientation
Mon.	24	Classes Begin
Fri.	28	Last Day to Request Advanced Placement
		Last Day to Add Classes
		Last Day to Drop with 80% Refund

September

Fri.	4	Last Day to Drop with 70% Refund
Mon.	7	Labor Day Vacation
Tue.	8	Classes Resume
Fri.	11	Last Day to Drop Classes
		Last Day to Drop with 60% Refund

October

Thu.	15	Last Day to File "Petition to Graduate" For December Graduation
Fri.	16	Staff Development Day – No Classes
Mon.	19	Classes Resume
Fri.	30	Last Day to Withdraw with a "W" Grade

November

Thu.	26	Thanksgiving Day Vacation
Fri.	27	Thanksgiving Vacation
Mon.	30	Thanksgiving Vacation

December

Tue.	1	Classes Resume
Wed.	16	Last Day of Classes

1982

SPRING SEMESTER

January

Tue.	5	Orientation
Wed.	6	Late Registration
Mon.	11	Classes Begin
Fri.	15	Last Day to Request Advanced Placement
		Last Day to Add Classes
		Last Day to Drop with 80% Refund
Fri.	22	Last Day to Drop with 70% Refund
Fri.	29	Last Day to Drop Classes
		Last Day to Drop with 60% Refund

February

Mon.	15	Winter Vacation or Snow Make-Up
Tue.	16	Classes Resume

March

Fri.	5	Last Day to File "Petition to Graduate" For May Graduation
Fri.	19	Last Day to Withdraw with a "W" Grade

April

Fri.	9	Spring Vacation
Mon.	12	Classes Resume
Fri.	30	Last Day of Classes

May

Mon.	3	Snow Make-Up
Tue.	4	Snow Make-Up
Sat.	8	Commencement

Please send me an Application for Admission form to
THE WILLIAMSPORT AREA COMMUNITY COLLEGE

Name _____

Address _____ Tel. No. _____

City _____ State _____ Zip Code _____

High School _____ Year of Graduation _____

College(s) _____

I am interested in the _____ Curriculum

I would like further information about _____

_____

_____

_____

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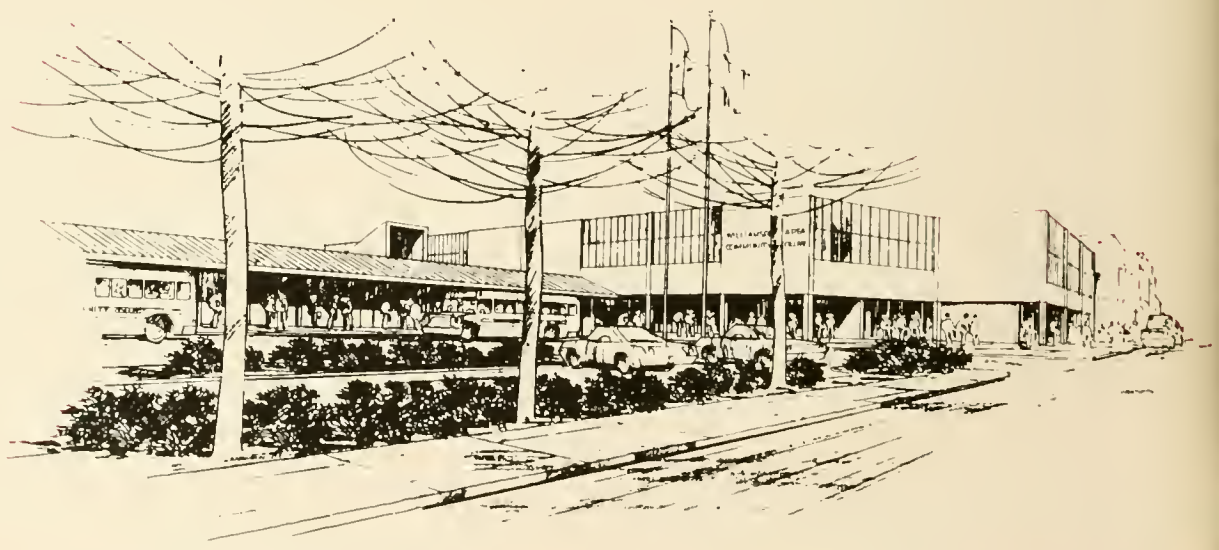
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